PROCEEDINGS

of the

SEVENTEENTH ANNUAL MEETING

of the

AMERICAN CONFERENCE

of

ACADEMIC DEANS

Conference Theme:

"THE EFFECT OF THE EXPANSION OF KNOWLEDGE UPON THE CURRICULUM"

JANUARY 10, 1961

DENVER, COLORADO

PROCEEDINGS OF THE AMERICAN CONFERENCE OF ACADEMIC DEANS

SEVENTEENTH ANNUAL MEETING

THE DENVER HILTON HOTEL

Denver, Colorado

JANUARY 10, 1961

Held in Conjunction with the Meeting

of the

Association of American Colleges

Editor, FRANK M. SNOWDEN, JR.

Howard University

Washington 1, D. C.

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AMERICAN CONFERENCE OF ACADEMIC DEANS

PURPOSE:

The meetings of this Conference are intended to provide opportunity for academic deans of liberal arts colleges to meet together, to share their experiences, to exchange views, and to discuss problems with which the office of the dean is chiefly concerned.

ELIGIBILITY FOR MEMBERSHIP:

All academic deans who are administratively responsible for liberal arts curricula of institutions which are members of the Association of American Colleges are eligible to become members and are invited to do so. However, the general meetings of the Conference are open to anyone who wishes to attend.

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REGISTRATION

January 9..... Convention Lobby ..... 8:00-9:30 p.m.

January 10..... Convention Lobby ..... 8:30-9:30 a.m.

PROGRAM

9:30-11:30 Morning Session..... *Silver Room*

EXPLODING PRESSURES UPON THE CURRICULUM

I. THE EFFECT OF THE EXPANSION OF KNOWLEDGE UPON THE CURRICULUM
JOSEPH B. PLATT, President, Harvey Mudd College

II. CHANGING CULTURES AND CHANGING CURRICULA
RICHARD H. SULLIVAN, President, Reed College

12:30 Luncheon..... *Junior Ballroom*

Address—"Toward a Universal Curriculum"
DR. F. CHAMPION WARD, The Ford Foundation

2:15-4:00 GROUP CONFERENCES

GROUP I ..... *Gold Room*
Curricular Beginnings: the first two years

Chairman: MINA REES, Hunter College

Panelists: HOWARD S. GREENLEE, Coe College
E. W. MCDIARMID, University of Minnesota

Recorder: CHARLES C. COLE, JR., Lafayette College

GROUP II ..... *Colorado Room*

Curricular Developments: the pre-professional and the general degree

Chairman: VICTOR A. RAPPORT, Wayne State University

Panelists: WILLIAM E. CADBURY, JR., Haverford College
TRACY E. STREVEY, University of Southern California

Recorder: KENNETH E. CLARK, University of Colorado

GROUP III ..... *Century Room*

The Liberal Arts College and the Graduate School

Chairman: WILLIAM PEERY, Tulane University

Panelists: CHARLES E. SHEEDY, University of Notre Dame
RICHARD L. BARBER, University of Louisville

Recorder: DEWEY B. STUIT, State University of Iowa

GROUP IV ..... *Denver Room*

Staffing Problems: the education and re-education of the faculty

Chairman: ROBERT F. CAMPBELL, Clark University

Panelists: FRANK C. GUCKER, Indiana University
PARKER E. LICHTENSTEIN, Denison University

Recorder: WILLIAM H. MARTIN, Hampton Institute

4:15 Business Session..... *Silver Room*

Report of Treasurer

Report of Secretary

Report of Committee on Nominations

Other Business

Presentation of New Officers

5:00 ..... Adjournment

5:05 ..... Meeting of Executive Committee

The Effect of the Expansion of Knowledge Upon the Curriculum

JOSEPH B. PLATT
President, Harvey Mudd College

THE THEME of this Conference is "The Effect of the Expansion of Knowledge Upon the Curriculum." It is to this theme that I wish to speak.

If I were to choose a text for my remarks today, it would come from the final chapter of Ecclesiastes: "And further, by these, my son, be admonished: of making many books there is no end, and much study is a weariness of the flesh."

This gathering of academic deans is concerned with the planning of the college curriculum. Suppose we consider first the pressures on us as teachers, and the reasons for the mounting public attention to education. The continuing existence of our nation may well depend on our ability to reduce the tensions in the world, for we have already mastered the techniques of our destruction. This reduction in tension, in turn, depends on the skills of many people, and the developing of a common purpose in the use of these skills. Our colleges and universities are now developing our portion of the skills that we will have in the people who will have this task in the coming generation. If we do avoid destruction we then enter a period in which the progress of our people depends as never before on making full use of the abilities of each of our citizens. Education is the leading out of these abilities; hence, it is not surprising that we are under pressure for more quantity, more quality, more efficiency, more research, more adult education, and more expert opinion. Actually, there has been surprisingly little public outcry about the college curriculum, largely perhaps on the theory that this is a matter for the experts (we have been more fortunate than the high schools in this respect, and our time may be coming).

I submit that the college curriculum is central to the whole matter. The United States and the world are in a period of very rapid social change, and our colleges and universities are, if not the architects, at least prime contractors in social change. For the change is brought about by new or extended application of knowledge. Knowledge is applied by people, and for a major portion of the people applying knowledge to change the society of the second half of this century, college or university education is one essential step. We do change our students, and the curriculum determines the changes we make. The diploma certifies these changes: this man can now solve differential equations, or translate Greek, or enter a law school, and hence he is socially useful in ways this institution has made possible. If we produce more poets and fewer doctors, we change the social order in which our children will live; perhaps for the better, but certainly we make a change. The Russians are training a larger portion of their young

people to be engineers than we are, and this is one reason (although not the dominant one) we can expect continuing differences between our two societies. As a people we think of our colleges as opening doors of opportunity to our young men and women. My point is that each time a student chooses a particular door, he changes by that much the opportunities that are available to us as a nation.

We deal in knowledge, and knowledge shapes the world. We are not the only dealers in knowledge, but we command an increasing share of the market. When we establish a curriculum, a process in which we have a good deal of independence, we determine in part what knowledge our students will apply in their professions, as citizens, and as persons. And hence we are indeed prime contractors of social change.

Let us consider the history of knowledge, or, more correctly, of recorded information. At the time the Preacher of Ecclesiastes was deploring the making of books, the world's two or three great libraries may each have had the equivalent in information-content of 10,000 of today's books. Five hundred years later the great library at Alexandria had some half million books. For the next thousand years, libraries were few and far between; a library of a thousand books was a great one until the Renaissance and the printing press. As a matter of fact, the Bodleian was a great library at the time of its establishment in the early seventeenth century, with about 2,000 volumes. A gifted Renaissance man could indeed be master of the literature available to him.

Since that time we have had an exponential increase in recorded information. Three things have contributed. In the last three hundred years the world's population has increased sixfold. Secondly, literacy is no longer the accomplishment of the privileged few. UNESCO's most recent World Survey of Education tells us that in the 1950's, for the first time in the history of the world, over half the world's children between five and fourteen years of age were attending primary or secondary schools. Lastly, knowledge begets knowledge. So we have more people, many more of whom can now use books, and the fraction who cannot only read but write books is expanding even more rapidly. The population explosion is mild compared to the explosion of information.

In the United States we have exceeded the world's growth in population, in literacy, and in authorship. This room may well contain more authors than the Thirteen Colonies had produced at the time of the Revolution.

Can we make quantitative estimates of this growth of information? Let's try. John Harvard left 300 volumes to Harvard College in 1636. Currently the Harvard holdings are over six million volumes. This works out to require doubling the holdings of the Harvard library every 20 years,[1] and in fact this exponential increase is not a bad fit to the data; the first hundred years were a little slow, but thereafter Harvard has never been more than ten years off schedule. It may take as long as thirty years to add the next six million books to double the

[1] The best exponential to fit this data indicates a doubling of the Harvard library holdings every 17.5 years. Source: 1831-1938 *The Scholar and the Future of the Research Library,* Fremont Rider, 1944, p. 8, Jan. 1, 1960: *The College and Research Libraries,* Volume 21, Number 1.

present size. If one takes the average of a number of university libraries, he again comes up with a doubling time of around twenty years.[2]

There are, of course, variations from field to field. In my own field of physics, as best I can estimate from the publication figures of the American Institute of Physics, we double our publication rate about every ten years. The doubling time of ten years in physics seems also to be characteristic of the sciences as a whole, to quote from another UNESCO study.[3] One consequence of the rapid expansion in scientific activity is the number of scientists: 90% of the scientists who have ever lived are alive today.[4] In as staid a field as Shakespearean scholarship, where one deals with new insights rather than new facts, the doubling time seems to be more like thirty years. (The Shakespearean estimate comes from perusal of the annual bibliography of English language and literature.)

We all complain, from time to time, that we aren't keeping up with our professional literature. We have cause. In the sciences, to cover all the publications that have some bearing on pure or applied sciences, one now needs to subscribe to 100,000 [3] periodicals. He also needs to read the new books on science appearing in the world, currently about 60,000 per year.

Furthermore, old knowledge never dies, although it may fade a bit. I suspect our colleges and universities, in physical education courses, offer instruction in archery to more young people annually than the 6,000 archers Henry V was able to muster at Agincourt. No doubt there was some lore lost as the Lombards and the Vandals fell on the libraries of the Eastern and Western empires, but a surprising amount has been reconstructed. In any event, in sheer volume, we now replace this much information in the world's store every two weeks. We would need to eliminate old knowledge as rapidly as we create new knowledge to keep this store constant.

All of you are familiar with the growing problem of buying, storing, and retrieving all this information. Any library that attempted faithfully to assemble each year's total new literature, in the sciences alone, would face accession costs of at least a million dollars annually, plus a third of a million annually in new building costs. And it would still be true that the organic chemists would frequently find it easier to measure the properties of an unfamiliar compound than to search them out of the literature. However, there is hope in sight. Nature somehow manages to store the recipe for each of us, which is about as complicated as the *Encyclopaedia Britannica,* within the volume of a single germ cell. In time we may learn to store information in much smaller volumes, at much reduced cost, and to code it so that it can be located much more readily. I am more hopeful about finding the techniques to do these things than I am about

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[2] The best exponential to fit the data indicates a doubling of the average university library every 16 years. Source: *The Scholar and the Future of the Research Library,* Fremont Rider, 1944, p. 8.

[3] Source: *UNESCO Survey on the Main Trends of Inquiry in the Field of the Natural Sciences, the Dissemination of Scientific Knowledge, and the Application of Such Knowledge for Peaceful Ends,* Pierre Auger, Special Consultant, Feb. 1, 1960, p. 1.

[4] *Ibid.,* p. 4.

getting the international agreement that will be required to select which techniques we will in fact use. It will be even more difficult to get inter-disciplinary agreement.

However, this question of storage and retrieval of information is not the issue before us today. If all the world's accumulated recorded information were infinitely available, it would only be useful as people use it. We call helping people to use information *teaching,* and we hope when we teach not only to help people to use a body of information, but to show them how they can proceed on their own to use more of it. Those portions of the available information which we explore together we call the curriculum. How can we manage to double the curriculum every twenty years, or should we?

Thus far we have been trying. As the curriculum has expanded beyond the grasp of any one person, we have offered different portions to different people; hence, the rise in specialization. As an example, consider the field of engineering. From the time of Julius Caesar to that of Napoleon, the engineer was a military man. He built fortifications and the engines to destroy them, as well as the roads and bridges which logistics required. Our Corps of Engineers still does these things. In the early nineteenth century a separate group of engineers evolved to plan and manage civilian construction; the British Institute of Civil Engineers was chartered in 1828, and the American Society of Civil Engineers in 1852. With the growth of the industrial revolution the mechanical engineers became differentiated, forming their own American society in 1880. By this time the electrical engineers were already distinct, and they formed *their* society in 1884. The Institute of Radio Engineers was founded in 1912, and the I.R.E. now has 28 technical subgroups; the members of the space electronics subsection probably have less in common with the audio engineers than all engineers had with each other a century ago.

Here I have simply gone through the genealogy of the space electronics people.[5] *Who's Who in Engineering* currently lists over 100 national engineering organizations, of which the Institute of Radio Engineers is one. Hence, I estimate there are over 1,000 engineering subspecialties.

Each of you can think of other examples of specialization, in medicine or journalism or economics or history or theology, on the junior college, college, graduate or postdoctoral level. Collectively I suppose our colleges and universities offer well over 10,000 recognizably different programs, intended to help people to use differing portions of the available store of information. If you think my estimate is ridiculous, make your own; but consider first the number of departments in your institution which offer degree programs, and then the number of specialized options within each department. Lastly, remember the wide variety of colleges and universities teaching in areas which you do not consider your proper business.

What are the limits on this process of fragmentation? One limit is that the problems in the real world, to which we hope our students will in due course apply knowledge, never seem to fit neatly into specialties. To put a better mouse-

[5] I am indebted to my colleague, Professor Warren E. Wilson, who suggested this genealogy.

trap on the market now, and to have the world beat the path, requires metallurgists and industrial designers and cost accountants and quality control people and market analysts and patent lawyers. A different team of specialists is needed to develop a portion of our foreign policy or to serve a large church or to administer a town. Frequently we find the team needs another kind of specialist, called a generalist, or a staff man, whose job it is to explain to the specialists how they are cooperating. Maybe this pattern is capable of indefinite extension, but I have the uneasy feeling that the problems are now changing about as rapidly as we can deploy the specialties to match them.

Furthermore, we have large and growing problems in common to all of us, and it is increasingly important that we have a common understanding of them. Somehow with the growth in specialized education we must also find it possible to increase the body of information shared by all citizens if our collective decisions are to meet our needs.

Lastly, the arithmetic is against us. For all of the population explosion, the amount of information is growing faster than the number of people. We cannot increase the number of specialties indefinitely; there will come a time when we have less than one specialist per specialty.

We will increase the number of specialties which we teach, and this will continue to be one way of coping with the increase of available information. But one is certainly entitled to question that we can continue at our present rate.

The second solution we have found to the expansion of information is to teach more students for a larger fraction of their lives. All of us are familiar with the increase in primary and secondary education in the United States; by the turn of the twentieth century we could no longer double our primary and secondary school enrollments because over half our population between 5 and 17 years were already in school. We could double the fraction of our population going to college; we did, and the process is still going on. The United States Department of Education tells us that 1.7% of our population between 18 and 21 were in college in 1880. By 1900 we had 4%; by 1920, 8.1%; and we now have 34%. The doubling time is again about that magic twenty years.[6] However, we can only double this fraction once more; 100% is our limit.

Higher education has been moving both out and up; at the doctoral level the doubling time is about ten years (again I use the statistics of the Department of Education). The number of earned doctorates has increased from 54 in 1880 to 9,700 last year, and the intermediate decades are usually within three years of this exponential curve.[7] If we can survive to the end of the century there may even be enough college faculty to teach the college students!

I am sorry that I do not have data on the number of postdoctoral students. My hunch is that the percentage increase is even more pronounced in the group undertaking formal education in the age bracket from 26 to 32. Here we prob-

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[6] *Higher Education in a Decade of Decision,* Educational Policies Commission, National Education Association of the United States and the American Association of School Administrators, 1957, pp. 22, 31.

[7] *American Universities and Colleges,* 8th Edition, American Council on Education, Washington, D. C., pp. 1144, 1145.

ably can double every decade for at least a century before we run out of people, although we certainly will run out of the people we now consider postdoctoral material.

There is, of course, nothing automatic about these increases. They came about because people studied and taught; the mathematics constitute a description only. The span of time over which our behavior can be described this way leads us to expect we may continue in the same path, but whether we do or not will depend on people. The same sort of statement could be made about the population increase.

What are the limits on the process of more education for more people? One limit is again the number of people. A doubling time of ten years is roughly a factor of 1,000 per century. From 1880 to 1980 we may possibly have increased our annual output of earned doctorates from 54 to 54,000, or be at most ten years behind schedule. However, I doubt that we will have the population to sustain an annual output of 54,000,000 Ph.D's in 2080. Another limit is the life span. We now have specialists who spend about one-third of their life expectancy in school. For the average of the population I suppose the fraction is about one-sixth. There are not many factors of two left, even with our increasing life expectancy.

We already have many fields of learning where it is biologically possible for a man to be a grandfather before it is professionally possible for him to be self-supporting. Maybe we have hit upon an indirect method of birth control, but my acquaintanceship with graduate students leads me not to put too much hope in it.

Here again, we shall cope with the increase of information by continuing to teach more people for longer periods of time. There is more promise here than there is in the increase of specialization, and somehow increased, rather than more fragmented, education is more in keeping with our national and our personal hopes. But even this mechanism has limits which are clearly in sight.

We conclude, then, that available human information is doubling every twenty years, and that our colleges and universities have attempted to make this knowledge useful to society by increase of specialization, by teaching more people, and by increasing the number of years of education for each person. While we can extend each of these mechanisms further, we cannot hope that these alone will serve our students and us as they have in the past. How do we then go about curriculum planning? Put in more familiar terms, we cannot forever increase the number of academic options, nor expect that a mounting number of postdoctoral fellowships is the ultimate solution. The long-range solution is a much more careful selection of what we leave in the curriculum, or a much more ruthless choice of what we leave out.

In the selection process we will need guidelines, and these will be as many as we have curricula. In each case the first question is "What sort of person do we expect the graduate of this curriculum to become, and what will he be doing?" Once this question is in focus, it becomes easier to decide what basic knowledge he should have, what techniques he must master to acquire new knowledge independently, and what practice will be most helpful to him in learning to apply knowledge. Blessed human perversity will still guarantee that a curriculum in-

tended to produce electrical engineers will sometimes graduate a poet, but we cannot afford the assumption that we planned it that way. As a Cornell alumnus I respect Ezra Cornell's words, emblazoned on the university shield: "I would found an institution where any person can find instruction in any study." It states a noble goal for the 1860's. For the 1960's I believe we need to decide which persons we have in mind, and what studies.

Only a limited number of techniques are available to us in attempting to do more teaching in the same time, and these techniques become more profitable once we decide what the focus of the curriculum is. We can eliminate unplanned duplication. Repetition is a very useful teaching device when it is used purposefully, but there is no point in blundering back over familiar ground in a different course, particularly if the familiarity is partly concealed by different terminology. Conversely, courses can often be planned together to reinforce each other; the teaching of history and literature is a familiar example. But the most useful aid to remembering and using information is theory. A useful theory connects previously unrelated facts and helps in turn to relate these facts to new situations. One function of the curriculum should be to connect the largest possible body of information with the fewest possible theories, searching even for those theories that may be inter-disciplinary.

I am aware of my brashness in suggesting methods of curriculum revision to a distinguished gathering of academic deans. I have never been a dean, which is a great help to me now in offering advice. Many of you will know better than I how to define the educational purpose of a curriculum, how to eliminate the less relevant portions of the curriculum and make use of the relevant portions of new knowledge, and how to lead a faculty in making these changes. My purpose today is to emphasize the urgency of the problem.

Many of you have been reading, as I have, Mr. Corson's disquieting new book entitled *Governance in Colleges and Universities.* He points out that under our system of academic freedom, what to teach is determined largely by the individual teacher, guided by the policies of his particular academic department. He and his colleagues owe their primary loyalty to their particular discipline; they are economists or chemists, or historians, and only secondarily concerned with the broad purposes of the institution. The academic dean of the college does have these broad purposes in view, and he has complete authority to persuade. The result is summed up in that tired witticism: "It is more difficult to change a curriculum than it is to move a graveyard."

May I attempt to summarize? We are living in a period of very rapid social change, in the world and in the United States. The change has come about by the application of knowledge. The body of available knowledge—with which people will work the changes of the future—is doubling every twenty years. At the current rates of increase, it appears that we will be limited by qualified people to make use of the available body of knowledge. Hence the portion of the future that we shape, as a nation, will be determined in large part by our success in deploying people to make use of the most relevant parts of available knowledge at the right time. What we teach—that is, the curriculum—assumes an importance it never had when fewer people could command all available knowledge.

Our responses to this challenge have been to increase the number of curricula, to extend the period of schooling, and to teach more people. Knowledge is expanding more rapidly than these methods can continue to encompass. Increasingly we must learn to select, to focus, and to outline the structure of knowledge, leaving the details to be filled in by the man who needs those details.

To undertake this kind of curriculum revision requires that we as faculties cooperate in ways that are new to us, and for which we are not well-organized. Hence we need leadership if our colleges and universities are to extend their usefulness to society. The task of the academic dean is to lead the faculty.

I thank you.

Changing Cultures and Changing Curricula

RICHARD H. SULLIVAN
President, Reed College

A SENSE OF REVOLUTION in the curriculum is, relatively, quite recent. Only for a century or slightly longer has the educational program of an American college or university been a blend of the old, the new, and the very new. Only in that short period has such a blend been necessary.

In Margaret Coit's account of John C. Calhoun's higher education in the South and at Yale during the first few years of the last century, one can catch glimmers and hints of what was to come, what had to come, but the heart of the curriculum belonged to an older tradition. Calhoun prepared for his final experience at Yale at Moses Waddel's Academy, one of the "log colleges" of the rural South, where a student memorized "thousands upon thousands of lines of Virgil, Horace, and Cicero." Even on Sundays there was no rest from mental and spiritual discipline, as the stern-browed Calvinistic schoolmasters poured their grim and unbending doctrine into the always intense and sometimes fanatical minds of their young listeners. And the results were good. Orthodox as was the curriculum, it was designed, not so much to impart knowledge as to develop the power for independent work and the qualities of judgment and imagination. Greek and Roman classics were stressed because of their wealth of general principles which could be applied to contemporary ethics and politics, the two matters which were of primary concern to a "gentleman."

This type of aristocratic education based upon an ancient tradition, with its teachers—however narrow and dogmatic—confident and unswerving within the framework of an accepted theology, but with the central purposes of that aristocratic education still liberal and broad and unprofessional, has long since disappeared from the core of our academic life. At Yale, to which Calhoun transferred as a college junior in 1802, an intermittent glimpse of a larger horizon was possible, but he faced still a prescribed and dictated curriculum. In his junior year he studied "languages, English, grammar, trigonometry, navigation, surveying, 'and other mathematics,' natural philosophy and astronomy." For Calhoun as a senior " 'Rhetoric, Ethics, Logic, Metaphysics, history of Civil Society and Theology' would demand his attention. Scientific studies, although virtually 'the promised land' to Calhoun, were so new in the curriculum that they were not even listed in the 1800 program."

Nevertheless there was a beginning. Before Calhoun's arrival, Benjamin Silliman had been elected Professor of Chemistry at the age of 22 in 1801, and "although Silliman could still carry the entire contents of the mineralogical cabinet around in one candlebox, the collection—and collegiate curiosity about it—was growing every day."

These introductions, however natural they might have seemed to some of the

ancient Greeks, were radical in the American college of 1800. Yet despite them one may still be confident that, to the Yale tutor and student of Calhoun's day, the growth of industrial and urban complexity, expansion of technological and scientific knowledge, and logarithmic acceleration of new discovery in the succeeding century and a half were utterly inconceivable. (Lest I be regarded as partisan, this vision or nightmare of things to come was equally impossible at Harvard and even, with due respect for our chairman, at Brown.)

Combining with and in part stemming from these developments have been other major factors: population growth, immigration, and migration; needs of a frontier and agricultural society; new forms of social consciousness about the affairs of the young and the old; the development of communications, transportation, and world markets; pressures of international relations and of war. This mélange has resulted in the creation of a vast multitude of new colleges and universities, the drastic modification of professional schools and curricula, the development of wholly new departments and programs of study, the emergence of new institutes of technology and science, huge enrollment increases in urban and other institutions, and a startlingly rapid growth of research facilities and research activity both within and outside of the academic setting. Even knowing of the recent creation of such new educational universes and the growth and change of older institutions and patterns, many of us suspect that we have not seen anything yet, compared to what the future holds for us.

This sense of anticipation, this belief that we have already but barely entered into an almost unimaginable revolution, may indeed have elements of truth. For us in higher education I suspect it is true if we are thinking in terms of administrative complexity and in terms also of our translation, interpretation, and assimilation of change into our institutional use. Yet in another sense, perhaps more fundamental, such a view may be romantic. For the important facts about change—change that has occurred, the principle that change will occur and continue—are fairly clear, and somewhat limited but still confident assumptions can be made.

We have now, for example, an improved consciousness of the sheer magnitude of the future requirements of manpower, matériel, and money for collegiate, graduate, and professional education. Six years ago, when I was much more directly engaged in national studies than I am now, there were far more blind spots, there was much more short-range concern, and (if you will) many more of the blind and the deaf in the higher reaches of educational enterprise. To say this, to believe that we have a clearer outline of the distant hills, is not to say that many of us are far from "running scared" along the river bottoms right now. *I* am, for one, having just devoted more hours than I dare count to planning a single college budget just one year ahead: no matter how sharp the pencil I use, even wildly imagined potential income won't balance desired expenditures!

Nevertheless, while predictions on a state, regional, or national scale very far into the future can be made only in gross and not in detailed terms, we can make them and we are making them. In contrast to the situation only a few years ago, moreover, we are willing and anxious to consider the implications of such predictions with reasonable objectivity and to realize much more forcibly the probable disasters of failure in long-range planning. Whether and to what

degree we shall succeed, which approaches and methods will be most fruitful, which attempts will lead into cul-de-sacs are by no means clear and assured, but the problems of mass and volume are identified.

We know something, too, about the personnel, administrative, political, and financial factors that are most likely to condition relative successes and failures of dealing with such problems as size and physical expansion. Again, it is of course true that our solutions as yet are less certain than our consciousness of the problem—our solutions, for example, for the undoubted shortage of Ph.D. college teachers and for the almost bitterly increasing competition among us for such rare specimens.

In addition, and perhaps more crucially, we know in a rather fundamental way—and with quite a new and spreading consciousness—that the accelerated rate of acquisition of knowledge, rate of invention, and rate of discovery are not temporary phenomena. We know that the results of change in these respects will breed further change, and we strongly suspect—to the point of confidence about it—that such rates not only will continue at a high level in presently defined areas but will spread in less predictable ways and with variable effects into other fields. The possibility of further acceleration is very real, almost certain.

Among many other observers, John D. Williams of Rand Corporation has pointed out a number of revolutionary discoveries in our life-time "that may rank with—or outrank—the steam engine and the lathe as key elements in the story of human technological development." His list—and you can make your own—includes such things as the capacity to produce synthetic materials, more obviously the nuclear chain reaction, the production and effects of general-purpose antibiotics, and automation through servomechanisms and electronic computers. His account of our increasing ability to control production and even environment refrains "from calling automation the final stage . . . of an explosive development," for "the theory of machines which can reproduce themselves is already partially in hand—as well as machines which can themselves evolve new kinds of machines."

If that has a flavor of Frankensteinian science-fiction, it is deliberate on my part—and probably was on his. Yet he is not a novelist but a thoroughly responsible and professional mathematician.

If the point is not yet clear—namely, that in principle we can and do now accept the inevitability of previously unimagined change and accomplishment—let me ask you to contrast, honestly and privately, in your own minds, just two things. Do you recall the "wild surmise" with which you faced the news of the first Sputnik? And, does that bear even remote resemblance to the degree of interest (or lack of it) with which you read, at least once a fortnight on your front pages, about new developments at Cape Canaveral?

We have recently vaccinated for polio on a massive scale. We bounce radio and television signals off the surfaces of satellites. Space medicine laboratories, intensively at work, herald new flights of man at speeds and to distances "beyond nature," as our fathers would say. Earth transportation by jet and rocket, and inter-continental missiles bring the world into our backyard. A new proposal for a dam that would change the beautiful wilds of southern Oregon is met by letters to the editor that speculate, in part, on the imminence of producing electrical

power from atomic energy and the perhaps outdated and unnecessary nature of new hydro-electric investment.

We are committed to technological and scientific research in and by government, business and industry, and education. We have sharply accelerated its pace. We know we shall do so yet further. John L. Burns, president of Radio Corporation of America, said last spring that, while "growth through innovation is, of course, not a new idea," . . . "what is distinctively new and different is the notion that innovation, instead of being left more or less to chance, can be systematically planned and carried out through research." If it is a new idea, it is now firmly held and we shall be more and more dependent on it. As he reported, "half of the $85 billion spent on research and development in the United States since 1941 has been spent in just the past four years." By 1975, he predicted, research and development expenditures are likely to exceed $25 billion each year. This fall President Pusey of Harvard called attention to the fact that funds spent on research in our universities rose by more than 2600% from $27 million in 1939-40 to $734 million in 1957-58. The continued increase since then is, I am sure, apparent to all.

What, then, are some of the major elements in the present and future environment of colleges and universities that should help to determine the choices by faculties and deans of what should be and must be taught and of how such studies should be arranged and organized in the framework of a college curriculum? With your permission I shall focus principally on the undergraduate college, omitting what seem to me possibly the more sweeping, but also probably the more obvious, changes that are likely for the professional and graduate school.

My preliminary remarks must have suggested to you that the *fact of change itself,* certainly in mathematics and the natural sciences and—to my mind—almost as certainly in the social sciences, lies close to the center of our problem. The subject-matter of real importance in chemistry and physics and mathematics and biology is bound to change rapidly and, in several different ways: through the assimilation of new findings into older major concepts, sharpening and developing them but not leading to their discard; through the substitution of closer approximations to truth for earlier half-truths and misleading concepts; through the addition of new findings and new concepts in new areas; through philosophic assimilation and reconciliation of experimental results into revised and new frame-works and constellations of hypotheses. Practice, technique, and theory will continue to shift at advanced conceptual levels, each to itself and each in relation to the other.

Some of you are far better able than I to evaluate the detailed impact on college studies, for example, of the new telescopic discoveries through the Mt. Palomar observatory, as reported by the Carnegie Institution of Washington. These include the revelation of a whole cluster of new and possibly colliding galaxies apparently receding from the earth at almost half the speed of light; evidence that one distant galaxy may be 25 billion years old, more than three times what had come to be an accepted view of the limit on the age of the universe; discovery of far more powerful magnetic fields and far greater deviation in the chemical composition of some stars than had previously been found in recorded observation. It is small wonder the Carnegie report suggests that these are reasons for

re-examination of theory concerning such small items as the origin, age, and structure of the universe.

Now it may be that some academic deans are in a position themselves to modify and even to revolutionize both the curriculum generally and each individual course. Despite this possibility, I must assume that, whatever stimulation and leadership may be provided by deans and presidents, the critical work must be done by faculty members, field by field and across fields, if courses are to be continuously updated. One of the responsibilities of administration is to create and protect the conditions that allow the faculty to discharge not only their direct teaching duties but the more indirect tasks of examining and modifying the general curriculum and their courses within it.

For the faculty generally, but critically for those teachers in fields of rapid change of content, technique, and theory, we can and must try to assist in at least these few ways:

(1) It seems essential that the teacher must himself be up-to-date continuously with relevant and new knowledge. Time for study and more study in the library with books and journals must be provided, obviously, and I suspect this means the very difficult economic job of reduced teaching loads—in terms both of scheduled class hours and of numbers of advanced students taught per faculty member—in at least many of your colleges. Moreover, many of our institutions are somewhat isolated intellectually or geographically or both, and it is desirable to increase opportunities for professional travel to meetings and for sabbaticals and leaves, or at a minimum for summer experiences, at the university, government, and industrial laboratory and library.

Let me be quite specific, at the risk of digressing, on one point. I recently attended a National Science Foundation conference for presidents of smaller institutions and there proposed, in this context and for the reasons I have just cited, a real expansion of the Foundation's program of Science Faculty Fellowships. I trust my impression was accurate that the Foundation executives are sympathetic, but the rather small numbers of applicants do not now justify much expansion of the program if the important principle of selectivity is to remain in effect (as I for one would agree it should.) Their hypothesis at present, I believe, is that the colleges have not been enthusiastic in encouraging such applications because of the recognized and real difficulty of providing replacements for a faculty member on such a leave during the academic year. I suspect that there is not yet enough understanding of the flexible scheduling possible in this program, for most of an individual's own plan—if he and his college so desire—can be carried out over successive summers.

(2) It seems desirable, if not quite so essential, that a higher proportion of our teachers in fields of high and dynamic potential be themselves engaged in active research. Over the years we have been occupied with much discussion, sometimes acrimonious, about an assumed dichotomy between teaching and research, and certainly one can find many applications of a conflict that is real. Nevertheless, something that is quite valuable, it seems to me, happens when a man's own research is feeding back into his teaching, when a student recognizes that the teacher is not only reporting but participating. There is some worry at

present, to be sure, about the possibility that certain new opportunities for support, through undergraduate research participation proposals, will lead to an artificial or manufactured situation, with departmental research in which undergraduates can participate being "dreamed up" without intrinsic faculty interest in the investigations being carried on. I tend to think this concern is not yet at any rate a cause for worry, although certainly good aims and methods both could come to be perverted. My reason is that, so far, the greatest interest in creating such special and appropriate projects for undergraduate research experience seems to be shown chiefly by men who are also committed to their own research efforts and projects.

In his presidential address last spring at the annual meeting of the American Association of University Professors, Dr. Bentley Glass described the development of research facilities, equipment, and budget in biology in his own experience at Johns Hopkins from 1940 to 1960. The growth has been startling but understandable, and a qualified scientist, moreover, is no longer spending much of his time in the routine chores of being his own research assistant, dishwasher, machinist, and equipment repair man.

Dr. Glass went on to say that these changes "are not atypical of science departments in our larger universities, although colleges where research is quite secondary to teaching have not altered greatly. True, government grants or contracts for research are open to every applicant on the basis of merit; but heavy teaching loads often prevent faculty scientists from capitalizing on the opportunity. The cleavage is thus deepening between colleges which are primarily teaching institutions, and universities where teaching is secondary to research whether the criterion is expenditure or staff time."

I am of course not suggesting that in the college we subordinate teaching to research, but I do believe a better reconciliation is possible in many of our colleges. At least a few colleges, because of an atmosphere and conditions that are hospitable to research effort, are now attracting and retaining younger scientists who not long ago would have gone almost exclusively to the universities. These are men competent in research, with a professional drive "to do research," qualified to receive financial support for it (and so in fact receiving it), and yet feeling an equally real obligation toward and satisfaction in, the responsibilities of teaching. I can only hope this is a prophetic description characterizing a future increase in the numbers of teachers in your colleges who will achieve this (to me) desirable reconciliation.

(3) The time and energy required for a continuous modification of an existing course are very real, but probably minor, compared to the requirements for developing, introducing, and experimenting with sweepingly new patterns or sudden and major revisions. We must make more special provision for the latter. Again, to try to be specific, on the basis of our experience I think you would find the expense well-justified if you can furnish moderate summer stipends for selected faculty members for just this purpose. The availability of such funds, and your actually making the first few such awards, will be most encouraging to a larger group of your faculty to consider doing likewise.

(4) A quite extended set of remarks could be offered on the desiderata of

developing inter-departmental offerings within a broader division such as mathematics and the natural sciences. Let me pause only long enough, however, to indicate my belief that your sympathetic interest and suggestions may be particularly needed in this area. Pleading is of course seldom enough, and some of you may be able to achieve special budgetary provisions for such experiments as inter-departmental seminars at the senior level; joint participation by two or more teachers in (say) a new course in biophysics or a revamped offering in biochemistry; joint teaching of a physical sciences course for those students not likely to major in physics or chemistry; and encouragement of research projects that cut across traditional or ossified departmental lines in which students can take some part.

We are in, we have been for some time in, the Age of the Specialist. We shall continue in it but (I think) with some shifts in the meaning of that term. When Dr. Robert Oppenheimer visited Reed last spring, I was particularly struck by his informal observation that he had never experienced a time when the physicists and mathematicians had so little to say to each other. He was speaking of course of the most advanced levels of both fields and not of our situation with undergraduate colleges. I have not been able to resist wondering about our obligation to educate rather broadly even *within* the sciences precisely those of our science students who are most gifted, most dedicated, most likely to go on to professional scientific careers. The pressures of many graduate departments upon us are often in the contrary direction, and the major student in (say) chemistry is encouraged to take more and more work in the major field alone as preparation for graduate work. Once he has arrived at the graduate school, he will likely specialize more and more even within a sub-field. I can not help wondering how good, alert, and able a scientist he will in fact be at that future point in his career when the need to collapse into his research more biology or more physics or more statistics or more mathematics will perhaps suddenly arise. Will he know and recognize this? I am basically and thoroughly unqualified to provide the answer, but this line of questioning at least suggests the possibility that an interdepartmental major program for at least some of these future scientists will produce an eventually higher quality. I am not here arguing against the ideal of attaining depth in a field early in one's life. I am saying that the inter-relationships among disciplines and the inter-disciplinary nature of future scientific research both by the individual and the research team seem more clearly indicated all the time.

These considerations of breadth within the scientific curriculum lead, I hope not unnaturally, to other questions of breadth. I am sure you are all alert to discussions of the conflict and widening schism between the sciences and the non-scientific disciplines or, as Sir Charles Snow has dramatized it in *The Two Cultures and the Scientific Revolution,* between the "literary intellectuals" and the "scientists and, as the most representative, the physical scientists." Surely the gulf is relevant to our general topic today. For you who have been living with, and as a part of, college and university faculties of arts and science, this is familiar ground, and I doubt that I have much that is new to contribute. I cannot, however, wholly resist the temptation to make one or two observations.

The first has still to do with the question of how we shall educate our science

students. Whatever our culture achieves in reconciliation, in bridging of the chasm that Snow identifies—whatever we attain in bringing the humanists into closer sympathy with and understanding of both science and the scientist—we should be heinously short-sighted if we underestimate the power of science and our dependence upon science, and the future central role in decision-making for our society that the scientist will (as I see it) inevitably assume. For this reason I am inclined to believe, indeed to believe very deeply, that one of our over-riding tasks is to try as hard as possible to impart wisdom about man and society to the student of science. What of this we can provide for him by way of letters and history and philosophy and the arts and the social sciences may be as critical as any other aspect of our total job.

If you have not made a recent study of the courses taken over a four-year period by your graduating seniors, I think you would find it illuminating. Wide differences among requirements for graduation at various colleges, and the proportion of elective courses that such requirements permit, make it difficult to generalize very far from any one study. With that caution, in a survey of our own we found that a very heavy degree of concentration was occurring in almost every major field for the generality of our students. Much of this stemmed from a set of departmental requirements in the sciences and mathematics, and from divisional requirements and guidance in the social sciences and letters and arts, that were super-imposed over general college requirements that include a broad and difficult freshman Humanities course, competence in a foreign language, and at least two science courses to be taken by every student. Even so, the students for the most part were using what room did remain for electives principally to take more work in their own or closely related fields. The direction of our change was to add new general requirements so that every student will achieve a better sample of experience in broad areas outside of his major department or division, with still much freedom of choice as to the particular courses he can elect for satisfaction of the requirements. At least in a college like ours in which two-thirds or more of the students are planning to attend graduate schools, the obvious pressures upon students to take more and more work in fields closely related to the expected graduate field of study tend to prevent much free sampling of other disciplines. We may not rely too much on elections by the student.

Such pressures too in this Age of the Specialist tend to keep piling up the departmental requirements, not only in the sciences but also in the social sciences and literature. This will continue to restrict opportunities for breadth and inhibit our insistence upon it.

We can, of course, and I think we often do, fall into the error of overemphasizing the contribution that our formal efforts and arrangements make to the total education of the college student. Sometimes this can indeed be harmful. I commend to all of you Harold Taylor's article, "The Private World of the Man with a Book," in *The Saturday Review* of January 7, 1961. He pleads for a "restoration of the personal element in modern life and in modern education." He records his resistance to "efforts to build an impersonal administrative machine in place of a fascinating intellectual community." Beyond this I would emphasize that the influence of students upon each other is in many instances more profound

than the influence of their teachers upon them. This may be particularly relevant to our present question of breadth of education and insight into human experience for the future scientist.

In this context the college of arts and sciences, perhaps especially the residential college, has some real advantages, particular opportunities, and perhaps as well particular obligations. For whatever the formal courses that you may require or induce such students to elect, the continuing conversation in the dormitories, the commons, the coffee-shop, between classes, on the week-end—not only as much as possible between teacher and student, but inevitably and almost unavoidably between student and student—may penetrate more deeply and more permanently. And when this conversation is between equals, between the student of history or literature who is committed to his field and its values, and the student of biology with a loyalty similar in intensity but applied in a different quarter, it takes on meaning for both. For this reason, while I thoroughly applaud the introduction, since the last war, of more humanities and social science faculty members and student requirements in these fields into separately organized institutes of science and technology (or within the universities, the separated schools of engineering), the liberal arts college may have still an advantage in science education for which the better facilities and perhaps more distinguished faculty members in the institutes do not wholly compensate. For in the latter such humanistic efforts are intruded rather than integral, and their proponents do not have an equality of power or—in the eyes of the students—equal respectability.

The conversation between two young engineers or scientists who both happen to be studying Yeats (usually under some degree of duress) is usually likely to be quite different from that involving a chemist who is doing a senior thesis on amino acids and another student who is working just as hard on a thesis on Ezra Pound. It is not only that, in such a form of separate and specialized organization, one runs the risk of placing the teachers in the position of second-class citizen, but also of appearing to define the subject-matter itself as second-class. I know, and I am most anxious to emphasize, that the best of such institutions and schools such as President Platt's are working very hard to avoid these implications, to avoid the attitude expressed not long ago by the dean of an engineering school in a state university. He was describing the growing interest of his school in broadening its students, in teaching (among other things) more English. Yet he slipped, by going on to report that of course he intended to have the English teachers as members of his faculty, "where they can be under our thumbs, and we'll have none of those frills and pieces of nonsense they have over in the arts college."

I am uncertain how much we in the colleges can do in the short-run future to cope with another large question implicit in Snow's thesis. As he illustrates forcibly by examples, "closing the gap between our cultures is a necessity in the most abstract intellectual sense, as well as in the most practical." What can be done to educate the "literary intellectuals" in science, in some improved understanding of the methods and implications of science and scientific discovery?

In terms of American practice and problems, one may restate the details of Snow's particular definition of the schism. I like elements of one such restatement by an economist, Robert Lekachman, last spring in the *Columbia University*

Forum. He identifies good reason for giving equal attention to a third category, the social scientist. He also distinguishes usefully between the admiration that many of us non-scientists have for technology and its achievements and, on the other hand, our lack of comprehension of the abstractions of science itself. He suggests that "the split in the intellectual world is not really between those who manipulate words and those who manipulate scientific apparatus or mechanical appliances. It is between those who delight in the language of abstraction and the vast majority who prefer technique—in the laboratory, the factory, the interview, or the political campaign . . . . The real problem of communication may be between the practitioner of basic, abstract science and the rest of us—engineers, social scientists, and literary intellectuals included."

Whatever definition or restatement you use, Snow's or another's, we are left with the question of bringing to the non-scientist some better comprehension of science, its meanings, its changes, its potential. Broadly speaking, I see three areas or kinds of difficulties and important limitations on what can be done soon.

The first has to do with the non-science students themselves and particularly with their mathematical handicap. A set against the symbolic language of number and quantity is developed early and persists in many students. For a generation and longer our elementary schools were staffed chiefly by teachers, mostly women, whose own education had been deficient in mathematics and whose own psychological set against the field had been successfully developed. My children have had such teachers who in other respects were first-rate. Textbooks and methods were unimaginative, unnecessarily repetitious, and unresponsive to that wonderful "Why?" reflecting the basic curiosity of children. Now fortunately this is changing in most respects: through the improved preparation of new teachers and through the retraining of teachers in service, and through new curricula and methods that stress concepts and principles. Nevertheless, it will be a long time before such changes at elementary and secondary levels are pervasive nationally, and many entering college students will come with unnecessary scars. The same statements with respect both to the past and to present improvements apply to school study of the physical and life sciences. In a moment I want to return to and emphasize my hopes for the future, but some pessimism concerning my point here and a fair fraction of our students is unavoidable. We shall still have many students who are uninterested and incompetent mathematically and who are repelled by scientific study. (No matter how improved our future offerings, of course we shall always have some of these, and I am not regretting that desirable diversity of human experience and interest. Far from it: what I do regret are the avoidable casualties and narrowness.)

The second difficulty is either in the nature of the problem or in decisions by the academic scientists themselves as they respond to it. I find it understandable that the teaching of science courses to the disoriented student offers both less prestige and less stimulation than does either research or the more focussed teaching of interested and proficient students. There are not many legitimate grounds for criticizing the professional commitment of the science teacher to a strong belief in the importance of his own discipline. We should not really want it otherwise. In this context, however, such a commitment creates diffi-

culties for him in distinguishing between the coverage of subject-matter, on the one hand, that is appropriate and essential for those students who are going to specialize in that same field or a closely related one (and who, moreover, start with some real competence and ability in the language and techniques required), and, on the other hand, the selection of topics and concepts most critical in a course that will be a terminal experience in that field for the non-science student (who, to boot, is relatively deficient in the techniques and the language). These difficulties are being overcome with some stimulating experiments in a number of institutions, by inter-departmental efforts and the like. The primary motivation for the science teacher to concentrate his best and principal efforts in other quarters is, however, natural; it is more rewarding, and it is likely to persist.

Thirdly, one can not overlook the situation and attitudes of college faculty members in the humanities and, perhaps to a smaller but still real extent, in the social sciences. Their attitude influences the attitude and interests of the students. President Barnaby Keeney of Brown University has concluded "that the humanists have ignored a very important part of man's activities in the study of man's actions, writings, and works of art, and that is, of course, the development of science and technology. Very few professors of English could give much consideration in their courses to the development of science and technology in contemporary society, for they do not know anything about it. The reason they do not know anything about it is that they have never studied it seriously. The same is true of most professors of history. Until this deficiency is corrected, there will be a certain vagueness in the humanities. They will not be complete even in what they assert themselves to be—the record of man's thoughts, activities, and problems."

I realize that these remarks come closer to defining the problems, the roadblocks, than to suggesting methods for their removal. I do think something might be done, probably with limited effect and only with difficulty, that might have subtle and indirect but useful influence over a period of time. This would be to depart in a variety of ways from the autonomy of departments and the investiture of power in the departmental chairman. I do not know whether this is really any harder in the largest of your institutions than in the smaller ones, although I recognize that the number of faculty members in just one department in the former may be equal to the whole size of the faculty in some of the others. Both types are represented here today. The real use of divisional and all-college committees on personnel actions and instructional budgets can accomplish much in setting a tone and expectations. So can the stimulation of inter-departmental courses and seminars; provisions for divisional and inter-divisional majors; procedures that call for more than rubber-stamp approval, by the college faculty, of new courses proposed by any department; and periodic audits not under departmental control to get rid of curricular deadwood and sacred cows. Periodic faculty seminars have assisted in some institutions. And, in the smaller colleges, having outside visitors with some breadth of vision come, not just for a single guest lecture, but to live with you and the faculty and students for several days, has been frequently stimulating.

One other factor seems to me to have an important bearing on the relation-

ships among departments and their faculty representatives. In the speech I have already referred to, Bentley Glass observed, "Administrators have long since recognized that in order to have any engineers, geologists, mathematicians, physicists, or chemists of standing on their faculties whatsoever, they must remunerate them on a different scale from that applicable to teachers of history, languages, or literature."

This not-so-slow poison within an institution is compounded by the relatively much more favorable opportunities for the scientist to engage in paid consulting work, to have more assured and regular summer income from research grants, and to receive more fellowships and other support for sabbatical and other leaves. If the salary practices of the regular academic year also markedly differentiate in terms of experience, qualifications, apprenticeship, skill, knowledge of and standing in one's own field as judged by peers, and (less cogently but more visibly) age, we then create more clearly different classes of citizens within the faculty, and in the long run we shall probably have different levels of competence. I know of no magic solutions. The compensation of the others must be brought up to the levels in the sciences as rapidly as possible (to the extent that it is indeed possible), and alertness to equitable salary administration including clearly stated salary scales, the use of advisory faculty members of real competence and devotion to be taken fully into the confidence of the administration, and other procedures to that end will help to remove suspicion, to meet the natural fear that not all is right that comes from secretive or arbitrary systems. On the part of a faculty or a section of it, the understanding of realities, even if regretted, is less corrosive than the human suspicion of the unknown or the hidden. I think too that the principle is fair (and fairly accepted by the scientists themselves in most cases) that one may commit to the other fields a disproportionate share of a college's resources for the support of research, professional travel, and the like to help in a small way to counter the imbalance of external opportunity and support available to the science field.

Finally—and you are very patient with me—I wish to speak briefly about one other trend that is generally related to our principal topic and that could soon have more thorough effects in requiring changes in the curriculum than any other that I have touched so far. Despite my carefully limited pessimism expressed at an earlier point, I think it is not unduly dramatic to say that we are experiencing a revolution in the secondary schools. Concern about gaining admission to "prestige" colleges is affecting the motivation of students and parents. We have new, special, and challenging programs for the superior student. You know of national and more local efforts to up-date the high school curriculum in physics, chemistry, mathematics, and other fields as well. In many places there is both earlier and longer study—and in some elementary and high schools a wider offering—of foreign languages, with, too, a more active and less passive approach in such study. Experimentation has included programs of advanced placement and credit and of early admission to college; attempts to improve the intellectual content and standards of teacher preparation; institutes in a variety of fields for older teachers; and stimulating programs for the Master of Arts in Teaching degree. The public is more insistent upon rigor in academic work, with more questions about automatic promotion policies and the possibility of merit salary systems.

By no means to be forgotten is the re-involvement, actively, of college and university teachers and scholars in all of these efforts. They are having some effect almost everywhere and very important effects in some places.

By our practices and attitudes the colleges can contribute to the continuation and intensification of these trends. Let's take a concrete example. At Reed I feel that before many years have passed we shall have both the opportunity and the obligation to consider two changes in our foreign language requirements that now seem fairly drastic. We should consider these before long, not only for their intrinsic merit and application to what we like to keep calling a liberal education, but also for the influence upon and encouragement of serious study in the high schools. Now we have the rather standard requirement of a demonstration of competence in one foreign language. This can be met by successful completion of the second year course or by a proficiency examination. My first proposal is to stop granting college credit for an elementary college course in a student's *first* foreign language. We are still doing, too late, too much of what should not be deferred into the college years. The second proposal is that for most students (I say "most" in recognizing that some legitimate exceptions will be necessary in the interests of flexibility for individual student programs)—for most students competence in a second foreign language should be required. We complain much in high places, and rightly, about the national scandal of our insular illiteracy, and we need action on as many fronts as possible.

More generally, by our practices and attitudes we can respond quickly and effectively to the challenge presented by the improved and improving preparation of our entering students, or we fail. With this challenge before us, I trust your examination of the curriculum will not assume that everything that is offered must take the form of standard classes and courses. More independent study under looser supervision, more tutorial arrangements, more involvement of students in research will all be useful approaches. A large error would be any continued underestimation of what students can successfully attempt and master. Neither the national interest nor our oft-professed goal of individual self-fulfillment will tolerate the consequences of our aiming too low. Our assimilation into the college curriculum of new knowledge and new insights, replacement of older patterns and content by continuous review, and systems that reflect a determination to capitalize on accelerated rates of discovery must reflect also—and with equal weight—the enlarged capacities and, I would estimate, improved motivation of the serious student. The enriched store of knowledge, the increased accuracy of information, the sharpened insight, the quickened imagination of our students, the quality and depth of their learning—and nothing less—justify our existence and must illuminate our purposes.

Toward a Universal Curriculum

F. CHAMPION WARD
The Ford Foundation

FATHER O'DONNELL, LADIES AND GENTLEMEN:

I am afraid that the curricular indigestion induced by the morning session will not be relieved by what I have to say this noon. Presidents Pratt and Sullivan assured us that, had they once been deans, their advice to us would have been less ambitious. I must beg to differ. No one could be more carefree and irresponsible than a *former* dean, especially one who is now engaged in helping to give other people's money away (overseas), instead of trying to secure some.

To discuss a basic curricular question in the presence of a large body of men and women, each of whom is, by definition, "too intelligent to be a College President," is a rare honor and opportunity. The prospect has led me to expand and give a more seemly title to a short essay published three years ago in the *Journal of General Education* under the somewhat flippant title, "What DID Confucius Say: Animadversions on the Tribal Curriculum." Your occupational distaste for trade journals and the importance of the subject before us embolden me to try again today to say what a universal curriculum would be like and how such a curriculum might actually be developed as the central principle of a liberal education.

These views may be traced to an occurrence of some ten years ago which I have not been able to forget. I was then dean of the University of Chicago's College and, in that harried but always interesting capacity, received word one day that some of the students wished to question me about "the new history course." This was a course in the history of Western civilization which the faculty had recently added to the College's prescriptions, not without debate and trepidation as to the wisdom of requiring so many to devote so little time to so much. Prepared to defend the pretentiousness of this undertaking, now that the deed was done, I was surprised to find that its young critics had taken the opposite tack. My colleagues and I were moodily accused of "cultural tribalism." "Where is Confucius?" my young hosts asked. "Where is Asoka? Where is Persepolis or, for that matter, the Taj Mahal?" Where, indeed? For our students, all of these persons and places were "one with Nineveh and Tyre" and would remain so, insofar as the general education we had so carefully planned for them was concerned.

I escaped that night, after murmuring something about not wanting to spread things too thin, staffing difficulties, and our cultural heritage; but continued reflection and five years of work as a consultant in education in Asia, the Near East, and Africa have led me to agree with my reproachful young hosts of ten years ago. Like the child who described the nakedness of the king, they had already

noticed that the world is round and not completely bisected by the Suez Canal. Some of them had been in Asia during the war, and more of them expected to go there in the future than dreamed of such a venture in my college generation. This essay will attempt to expound the case for a universal curriculum which those students might have made if I had stayed to listen and they had commanded the requisite pedagese.

Let me say first what I don't mean by a "universal" curriculum. I do not advocate an exhaustive survey, or even an impartial sampling, of all cultures, simply because they are there to be known about. That is the task of a universal anthropology, not of a universal curriculum. Nor do I advocate an excursion into the remote and exotic, *à la* Marco Polo. The standpoint of the American Express Company, which calls a skirt and blouse "national dress" but a sari "national costume," is not the standpoint from which a universal curriculum should be constructed. Nor am I arguing that growth in tolerance and understanding strictly entails the study of non-Western cultures. There is plenty in Western culture which is exotic to American collegians, and the problem of getting a cheerful High-Y president from an Iowa high school really to understand a Nazi concentration camp is no easier than getting him to understand the Samurai of medieval Japan. Nor would a universal curriculum be justified by the fact that some students need to be prepared for special roles in special areas abroad. Finally, I do not aim at either a synopsis or a common residue of diverse human ideas, values, and social forms. A universal curriculum would neither proclaim the higher truth, which different cultures have struggled incompletely to achieve, nor seek to abstract their highest common denominator.

I accept the received conception of liberal education as seeking to develop a matrix of ideas, values, knowledge, and methods whereby synthesis may be sought rationally by the student himself. My quarrel is not with the ends sought by liberal education but with its present scope.

By a universal curriculum, I mean one which selects its matter impartially from the products of all the major cultures of the world, in accordance with the principle of the best. This is a rather radical conception, and I venture to say that any faculty which attempts to realize it in practice will never be the same again. Neither will its students, or its dean.

Let us examine the obstacles, theoretical and practical, which would have to be overcome in such an attempt.

So long as "coverage of content," however thin and evanescent it might be, remained the aim of general studies in our colleges, the difficulties in the way of stretching curricular pretensions beyond the wide limits of what Santayana calls "respectability and Christendom" could be fairly described as insurmountable. To inform the student, even in outline, concerning the context within which the major works, ideas, and problems of "Western man" have emerged, and to mention or classify each of those items at least once for each student in four years, was itself an almost impossible task. Small wonder, then, that most of us who were taught on this principle were left, like Santayana, to think vaguely of the East as consisting of "immense continents swarming with Chinamen, polished and industrious, obscene and philosophical." We might regret our vacuity, but there was little to be done about it.

As an undergraduate, I "majored" in the "History of Art." I see now that it was really the history of Western art that I studied. There was one course in oriental art but I was too busy with minor Flemish painters to take it. Similarly, courses in Indian philosophy are often taught as if they had nothing to do with philosophy (and when they are taught by Sanskritists, this is often all too true).

There is more hope in the now-prevalent conception of liberal education as initiating the student into a lifelong process of self-education by means of intensive examination of selected works, ideas, and problems. At least, on this view of general education, time can be given to the examination of exemplars which are considered to be of major importance, whether or not they are all internally related within a single recognized line of development or cultural nexus, the Industrial Revolution, for example, or the Renaissance. Moreover, the current practice of juxtaposing major expressions of artistic genius or philosophical speculation or scientific inquiry or practical policy for the purposes of analytical comparison by the student could in theory draw its materials from beyond the precincts of Western civilization. In courses in the humanities particularly, there would be no radical novelty or incoherence, and presumably much edification, in instituting such comparisons between, say, the rule of conduct set forth in the *Bhagavad Gita* and that expounded by Kant, between Machiavelli's theories of statecraft and those of Chanakya, between Iqbal and Nietzsche, Confucius and Montaigne, Aesop and the *Panchatantra,* the *Iliad* and the *Ramayana,* Chartres and Nikko, Pompeii, and Petra, the opera according to Peking and that according to Bayreuth.

In listing these East-West pairs of exemplars, I am not arguing either that two-termed comparison is a preferred mode of analysis in the humanities, or that, in respect of any topic, an "Eastern" and a "Western" treatment of it ought always to be compared or contrasted. If all works of excellence from East, West, and South of Suez are made equally eligible for humanistic analysis, many ways of treating them will be in order. I would venture to hope, however, that "East" and "West" would not be viewed primarily in terms of their "influences" upon each other. From the humanistic point of view, it seems more important to note any formal affinitives between Plato's thought and that of some "Eastern" thinkers than to wonder whether or not Plato really did make a journey to Egypt and whom he may have met there. (Are we to read the *Upanishads* only because Schopenhauer read them? If that had been Schopenhauer's criterion, would *he* have read the *Upanishads*?)

In history and political science, anthropology, sociology, and economics, the possibilities are equally evident, but they invite a different curricular treatment. The resources and perspectives which these disciplines supply are already being employed, albeit haltingly, in the struggle in which Americans are now everywhere engaged to do less harm than good as technical consultants, philanthropists, cultural attachés, publicists, and diplomats in the materially underdeveloped countries. These first efforts have already shown how much we still have to learn about "the cultural implications of technological change," the "economics of rapid development," "intercultural communication," etc. In a universal curriculum, therefore, the social sciences might usefully be taught in terms of the perspectives which they can be made to throw upon questions of theory and practice which

arise in the attempt to solve problems of "development," to adopt appropriate international policies, and to appraise possible new admixtures of "Western" and "non-Western" social forms and values. Again, the current emphasis in general education in the social sciences upon the critical examination of selected social problems would appear to make this procedure feasible.

Consider for a moment the growing prominence of "developmental economics" in current economic discussion. Western-trained economists in developing countries and Western economists now attempting to advise and assist such countries are encountering problems to which principles derived from developed economies must be adapted in new and interesting ways. These problems are particularly edifying in new countries where economic planning is prominent, and where explicit national debate goes on concerning the relative investment to be made in education at different levels, in small as against large industry, in "labor-intensive" projects, in agricultural or industrial development, *et cetera.* The intricate interplay of political, social, and economic considerations which "planning" decisions of this sort must take into account should be especially instructive to students bent on learning how the social sciences can throw some rational light into the cave of practical life.

Examples of this interplay at a very concrete level are given by the anthropologist, Mr. McKim Marriott, in his studies of the obstacles facing the permanent adoption of improved agricultural and medical practices in North India. A new kind of wheat which made its case to the farmer in terms of increased yield and income nevertheless encountered objections from the farmer's wife when she learned that the new wheat made less tasty *chapattis,* less cohesive thatch, and less adhesive "plaster" for floor and walls. Similarly, the acceptance of the modern doctor is resisted when the doctor appears as simply one more remote *sahib,* external to the familiar village society within which the local *ved* has long been an accepted member. Again, African wives who were supposed to have been "liberated" from the drudgery of life in the bush by moving to model townships in a Southern Rhodesian city were, in fact, rendered bitterly unhappy by separation from the network of countervailing forces normally available to village wives in the persons of her male relatives. Left alone with her husband in the city, without these traditional allies, the wife lost status rapidly, and all the water taps, good housing, and other amenities provided by paternalism could not restore it.

Students of political science and constitutional law who wish to study constitutions in the making could do no better than to turn to present-day Africa. There, in Nigeria, in the *Conseil de l'Entente,* in the Federations of East and Central Africa, unique combinations of racial, tribal, and provincial interests with the most sophisticated Western political ideas and devices are being worked out. Again, in Ghana and Tanganyika among many, one-party states are emerging which are neither wholly totalitarian nor wholly democratic. If such students look carefully enough at recent African political evolution, they may even clear their minds of cant about such shopworn topics as "colonialism," as they come upon cases of privilege combined with tutelage, privilege without tutelage, and, now in prospect and most confusing to the Marxist, tutelage without privilege.

In mathematics and the natural sciences, the curriculum is already universal in the sense here employed. We are by now accustomed to the internationalism

of mathematicians and natural scientists, who have long disconcerted political nationalists and cultural chauvinists, simply by taking knowledge where they find it.

Until recently, the problem of securing teachers for a curriculum making wide use of materials drawn from non-European cultures was regarded as insoluble. Subsequently, thanks to farsighted efforts by several American universities and foundations, a substantial and increasing number of young scholars, both in the humanities and in the social sciences, have been enabled to live and study in Asia and Africa as part of their specialized study of the art, thought, languages, and societies of those regions. At the same time, the work of already established departments and institutes of Asian studies has been supported and enlarged in scope, and provisions have in some cases been made for established scholars and teachers whose present competence lies entirely within the European tradition to be relieved of ordinary duties for a time in order to add new strings to their bows. Finally, Asian scholars from newly independent nations are being enabled to visit the United States in increasing numbers. I am aware of the limitations of some of these procedures, but, taken together, they should make it possible for experimental beginnings to be made and expanded on a somewhat better than "bootstrap" basis. And, once such beginnings have been made, they should act as a stimulus to appropriate higher studies.

But I have been assuming that, given methods for making them accessible, the products of non-European cultures would be worthy material for inclusion in a general education designed in accordance with the principle of excellence. Is this by now a safe assumption, or must the ghost of Macaulay's dictum of 1835, that "a single shelf of a good European library was worth the whole native literature of India and Arabia," be laid once more? In reply, I point to a single phenomenon which may have struck those of you who have visited Asia, and particularly India, or who have observed superior Asian students and scholars here in the United States. In India, one encounters persons who are thoroughly familiar with both Shakespeare and Kalidasa, with both European and Asian music, with the Bible as well as the Gita. (Because he quoted easily and pertinently from the Bible during a tour of the United States, one Brahmin of my acquaintance was invariably asked, "Aren't you a Christian?" His invariable and Delphic reply was: "Yes, I am a Christian. I am also a Hindu.") Are we to assume that only Indians are capable of such catholicity or that only patriotism accounts for their apparently equal appreciation of Western and Eastern cultures? Does it not seem more likely that the peaks of both cultures are found to be comparable in height by those who have learned to ascend them with unsquinting eyes?

Of course, I do not contend that appreciation of "other" cultures should be accomplished through depreciation of one's "own" or that topics and works should be selected from different cultures with a mechanical symmetry, where real differences in importance or excellence exist. For example, it would be as sentimental to assign equal stature to European and Asian contributions to natural science as it would be to equate German and English contributions to European music. But, except for latter-day Compteans, the command of positive science will not be a unique measure or an indispensable condition of civilization.

Suppose the merit of unfamiliar cultures to have been granted, suppose that methods adequate to a first grasp of their products are already in use in our colleges, and suppose, finally, that teachers able to teach in a universal curriculum can be found or made, will it not still be argued that other cultures are, after all, other cultures and that, since time is short, it had better be devoted to insuring that the student "comes into his own heritage"? If only a few cathedrals can be studied, must not the Blue Mosque and the Shwe Dagon pagoda be honored *in absentia?* If only two revolutions can be compared, must not Gandhi and Mao give way to Robespierre and Lenin?

In one sense of the term, the cultural heritage of today's generation of students in America is that which has explicitly shaped the mind, character, and taste of their teachers and parents and which is "there" to be apprehended and assimilated by those students in their turn. We may count upon American society in general and American schools in particular to convey this heritage to the rising generation. I have little fear that this realized legacy will lose its identity or its importance for American students, whatever else their education may include. And yet, who *are* the rising generation of Americans? Let us recall that, within the last few years, we have added many new citizens of Caribbean and Asian extraction, and that our Negro citizens have begun to take a new and positive interest in their African origins. In this quite literal sense, we Americans are the only planetary people. This fact should serve to remind us that a living legacy is never simply carried into the present from the "settled past" (to borrow Whitehead's terms); it is also created in and by the present. What was legacy for Aristotle had been adventure for Plato. Every occasion of experience, Whitehead reminds us, and *a fortiori* every human generation, "arises as an effect facing its past and ends as a cause facing its future." In each age the task of liberal education is to discern the future which the rising generation faces and to shape for that future an explicit legacy appropriate to its deepest requirements. I submit that, in our time, this legacy must be drawn from a reservoir as wide and various as the human spirit and as deep as its most profound achievements. For we are at last persuaded by sheer circumstance to join in the classical profession of Terence; we can now begin to see that our "tribe" is mankind and henceforth nothing that is human can we count alien to us.

RECORDERS' REPORTS

GROUP I

Curricular Beginnings: the first two years

Chairman: DEAN MINA REES
Hunter College

Panelists: DEAN HOWARD S. GREENLEE
Coe College
DEAN E. W. MCDIARMID
University of Minnesota

Recorder: DEAN CHARLES C. COLE, JR.
Lafayette College

In considering the exploding pressures upon the curriculum in the first two years, Group I had the benefit of hearing two excellent papers presented by Howard S. Greenlee, Dean of Coe College, and Dean E. W. McDiarmid of the University of Minnesota.

Dean Greenlee asserted that the most important portion of the entire undergraduate curriculum was that which was devoted to the general degree requirements. He maintained that the issue of general education versus distribution as alternative ways to spell out the general graduation requirements was of central concern especially since both theoretical and practical considerations entered into the resolution of the problem. He believed that the selection of either general education or distribution as a method of organizing the requirements did not of itself guarantee solution to the problem of improving the curriculum in the first two years.

Another issue which Dean Greenlee examined was that of the cultural scope of the general degree requirements. He pointed out that we must consider whether it is preferable to deal exclusively with subject matter limited to Western Civilization or to include materials about non-Western cultures. There is likely to be no simple answer, he declared, since the relevance of non-Western subject matter may vary from one discipline to another. Furthermore, the problem of how best to transcend cultural boundaries is with us, whether we are committed to general education or to a principle of distribution.

The issue of coverage versus depth of penetration should also be a matter of concern to us, according to Dean Greenlee. Both in the general education and distribution approaches, the problem of selection and exclusion of subject matter must be resolved and this problem, he asserted, is becoming all the more acute as the sum total of human knowledge increases at such a rapid pace. "Whichever path we choose," he declared, "we are faced with selecting subject-matter which is in some way representative of a much larger mass from which our examples have been quarried. The extent to which we are successful in this matter of adequate representation may well depend chiefly on our commitment to the aims of liberal education and the clarity of our thought."

There are three other issues with which we must be concerned, Dean Greenlee declared. The current and future mobility of faculty members and their search for status in their profession have a bearing on the college curriculum. For instance, he observed, although general education courses have been popular, they probably have not provided the faculty member teaching them with the same "mobility potential" as teaching in the "more traditional disciplinary orientations." In other words, teaching in the more traditional curricular pattern of distribution may provide more professional recognition than teaching general education courses. However, Dean Greenlee pointed out, the quality of the faculty was more important than the particular curricular approach.

Because of the practical difficulties involved in staffing, Dean Greenlee expressed a preference for the distributive rather than the general education orientation in the first two years. He believed that the great majority of new teachers available in the next decade will have in their graduate training a built-in disposition toward distribution requirements and the traditional disciplines. As he put it, "Involving their teachers in distribution requirement problems while attempting to help them see that the 'exploding pressures' demand trans-disciplinary concerns in the interest of disciplinary clarity will be easier than asking them to re-orient themselves to a general education approach."

Dean Greenlee listed other practical advantages in the distribution approach. These included the chance for greater flexibility in the curriculum, the opportunity to capitalize more on students' interests, the greater ease of adjustment to individual student needs and preparations, and the possibility of introducing students to new disciplines under the guidance of teachers familiar with the conceptual tools of those disciplines.

He concluded by stating that the "competitive co-existence" of general education and distribution as methods of organizing the curriculum was undoubtedly beneficial to higher education. The patterns of requirements are bound to incorporate "many contingent factors and compromises." "The aims of liberal education," he declared, "cannot be brought into service to condemn or to sanctify either general education patterns or distribution requirements."

There were no basic disagreements expressed in the two papers. Dean McDiarmid began his presentation with the assertion that there is more discussion of and dissatisfaction with the first two years of the undergraduate curriculum than with any other phase of higher education. He listed some of the major criticisms, pointing out that some of them were even mutually contradictory. Some complain that the freshman and sophomore courses are too specialized; others, that they are too general. Some believe these courses are too elementary; others, that they are too difficult. Some maintain that the lower division work is too limited; others complain about the wide variety of offerings.

The problems involved in looking at the lower divisions curriculum, Dean McDiarmid declared, were magnified by the increased number of students attending colleges and universities. The problems are intensified by "the exploding nature of knowledge." They are further complicated by the fact that educators themselves are uncertain about and ambiguous as to educational objectives. This was particularly evident, he believed, in the curriculum of the first two years where either the institution's objectives were not clearly defined or objectives were

claimed for courses that were not entirely appropriate. Citing the catalogue descriptions of some courses at his own institution, he said, "I find them claiming to provide both 'general education' and preparation for intermediate and advanced courses. Other courses will claim to provide terminal and vocational values, as well as 'general education' values. One rarely finds a course claiming to be both terminal in nature and a preparation for intermediate and advanced work in the subject, though we are always looking for ways of un-terminating a terminal course."

Dean McDiarmid asserted that many persons viewed the first two years of college as crucial years for the student, a time when there are great stresses and strains on family ties and influences, and on the student's intellectual development. Agreeing with Dean Greenlee that controversy is beneficial, he indicated, however, that he thought higher education could not defend completely all that was being done and that there was much room for improvement in the lower division curriculum.

In outlining his specific recommendations, Dean McDiarmid said that he was a strong believer in the importance of individual differences. He did not favor a common core curriculum, but preferred a set of requirements that provided alternate methods by which students could achieve the objectives of the first two years. He believed that in redefining educational objectives colleges should spell them out in terms of subjects and in terms of skills or attributes. He listed the following as hallmarks of the liberally educated:

> "To learn to think more intelligently, to be able to communicate more effectively, to be able to participate in intelligent discussion, to be able to recognize and understand scientific problems, to be able to locate additional information, to be able to evaluate conflicting stories or claims, etc."

Dean McDiarmid also declared that educators are not carrying on enough research in the results of their teaching. He believed that more study was needed of student abilities and characteristics and of what types of courses will best achieve the stated objectives of the institutions. As he put it:

> "In this world of computers, controls, IBM machines, and other mechanical devices, we might furnish each student with a punched card into which would be coded the objectives of our lower division program to be matched with a card giving the student's particular background and experience, and previous training and education. The computer could then determine for us the objectives which the student had not already achieved. Then perhaps we could feed this through an analyzer which would pick out of the many courses we have to offer, those which contain the missing objectives, selecting from them, those which meet the student's own personal need."

Dean Mina Rees of Hunter College in opening the discussion, suggested that the major problems needing attention insofar as the curriculum in the first two years was concerned were classification of the objectives of the faculty, examination of the content of courses, consideration of the amount of required course work, and its timing in the undergraduate's academic career and evaluation of the effects of our teaching. She pointed out that the changes taking place in the

secondary school curriculum would have an impact on the first two years of college. She also maintained that faculty attitudes toward the curriculum, particularly the potential resistance to change, must not be overlooked.

With respect to the issue of general education versus the distribution approach, several viewpoints were represented in the audience. The advantages and disadvantages of a core curriculum were outlined in some detail. It was pointed out that neither speaker had really defined general education and that the quality of teaching was probably much more important in the final analysis than the curricular orientation. There appeared to be a general willingness to accept the proposition that there was value in having alternate means of meeting the basic requirements.

The opinion was also expressed that a more fundamental question in producing liberally educated individuals was how to grapple successfully with the conflict of interest between developing skills and encouraging perspectives. Several stated that the strong pressure for specific, narrow, vocational training on the part of students, their parents and the public conflicted with the efforts of the institution to provide a liberal education. It was felt by some that this was a more crucial problem than the one of curricular organization.

Others were concerned with the problem of coverage. It was asserted that superficiality and intellectual rigorousness could be found in both the general education and distribution approaches. No single educational philosophy had a monopoly of either the excellent teachers or the dull ones. Regardless of the approach taken, there appeared to be a growing awareness that because so much more had to be learned than in previous eras, the problem of selection was critical. Several speakers asserted that it was necessary to probe more deeply in a few selected aspects of a discipline rather than to attempt approaching a complete coverage of it.

A number of persons indicated that the problems of staffing and faculty relations were perplexing ones insofar as curricular improvement was concerned. It was pointed out that frequently the individual faculty member did not transcend his own narrow interests to concern himself adequately with the needs and problems of the institution as a whole. Representatives of several disciplines reported that there were not enough persons willing to devote time to teach in areas in which they were not proficient. It was pointed out, however, that there were values for the specialist in teaching outside of his own particular field. Scholarly demands and the drive for professional recognition are sometimes pressures on the individual college teacher which limit his effectiveness in teaching lower division required courses.

There was some discussion of the need for changes in course-content and subject-matter in the first two years. It seemed evident to some that freshman and sophomore courses must incorporate more material from the non-Western world, particularly in the social sciences and in the humanities. It was agreed that this presents a problem to the specialist unfamiliar with the subject matter of other civilizations. It was suggested that most needed were summer institutes on the non-Western world, adequately supported, which would enable faculty members to become better prepared for teaching in the 1960's. It was pointed out that we should avoid the premature introduction of courses in the non-Western cultures

since it was essential that such courses be taught by competent, well-trained teachers.

There was some discussion of the need for improving courses in the foreign languages. It seemed evident to several speakers that the time was rapidly approaching when elementary language instruction should no longer carry college credit. In the field of mathematics, it was asserted that the major need was for a variety of courses available at the freshman level to capitalize on the different interests and preparation levels of entering students and to avoid duplication between college and secondary school. Several referred to the increasing role played by the advanced placement program permitting colleges to achieve greater flexibility in their curricula and degree requirements.

Some persons felt that one of the most perplexing problems facing educators was getting more into the four years of college. How to gain more time, to require more of students and to mold the curriculum to reflect the major advances in all the disciplines were issues that seemed to defy easy solution. While there appears to be much to add to the curriculum, there is little agreement on what to omit.

Time and again it was suggested that before we can expect much improvement in the curriculum, it is necessary that we define clearly and precisely what we want to accomplish. Identifying the various pressures, it was asserted, was part of the task of clarifying objectives. On this hopeful note a lively discussion was brought to a close.

GROUP II

Curricular Developments: the pre-professional and the general degree

Chairman: DEAN VICTOR A. RAPPORT, Wayne State University

Panelists: DEAN WILLIAM E. CADBURY, JR., Haverford College; VICE PRESIDENT TRACEY E. STREVEY, University of Southern California

Recorder: DEAN KENNETH E. CLARK, University of Colorado

Chairman Rapport opened the session with a paper which emphasized the need to broaden the intellectual base in the second two years of collegiate education. He said in part, "Our primary problem is how better to train our future scientists before they arrive at their graduate work. This comes under what is labeled in our program as the 'general degree program.' How can we assure that the future scientist does not take all, or virtually all of his work in the narrowest fields in preparation for his graduate work? At Wayne State University a prospective candidate for a degree is limited to but 45 (out of a total of our 120 credit hours) in one field that may be applied to his degree. But, a person who, for example, is majoring in physics may take work in mathematics, and this is

counted outside his 45-hour limitation. We all face the problem of whether this, in the end, is of greater or lesser benefit to the student.

"It is my understanding that in a ten-year period the number of qualified applicants to medical colleges has declined from a figure of 3.4 to the present figure of 1.2. This means, of course, that we have been approaching a potential figure of less than one for each available space in medical schools.

"Training for law appears not to be facing the same problem, although a national conference between the law schools and the academic deans held last year on the University of Michigan campus would indicate some concern on the part of the law schools about what they felt to be both decreasing numbers of applicants and an increasing number of less well-trained applicants. The final report of that conference did call for further conferences with the academic deans in the hopes of getting better—and the word 'better' was not defined—training for the prospective law student as well as seeking means to increase the number of applicants.

"We face two other problems, which may be called one, but I prefer to think of them as separate problems. I am referring to the prospective increased flood of our own students, and what I feel will become a sharp increase in the number of foreign students seeking admission to our colleges and universities. Are colleges and universities required to expand endlessly to accommodate those students? Are the junior or community colleges equipped to siphon off many of the students for their initial two years of college training? How can we induce more people to go into graduate training to become prospective college teachers? All of these and many more are questions that we, as deans, ought to answer."

Dean Cadbury reviewed the recent history of changes of emphasis in pre-professional work and in the last two years of college education. He indicated: "As the 1950's began a serious concern among educators was breadth. By the close of the decade nearly everybody was converted; the desirability of breadth in education, like the undesirability of sin, was taken for granted. The means of achieving such breadth is another question altogether.

"If the search for breadth dominated the scene a decade ago, I think the search for excellence can be said to hold that position today.

"Some time ago, it began to be apparent that there simply aren't enough well-educated, well-trained people to go around. Our chairman has already referred to the decline in numbers of able applicants to medical schools. We all know how hard it is to come by capable scholars and teachers in such fields as mathematics, physics, and psychology; even in the traditionally over-stuffed fields, like American history and English, the supply is falling behind the demand. And in non-scholarly fields also, able and well-educated people are needed in numbers far beyond those available.

"This was all becoming apparent when Sputnik appeared on the scene to jolt the man-in-the-street out of his complacency. And now the cry is for better education, more first rate scholarship. Competition is keen for well-trained, well-educated people. Although the medical schools have more than enough applicants, of a sort, they are no longer getting the cream of the crop. Graduate programs in pure science provide strong competition, and many members of our own science faculties urge good students to enter such programs. Law schools feel

that not enough of our good students are going into law. Teaching, engineering, social work—there is scarcely an occupation requiring the use of the mind which is not crying for larger numbers of able people. It is not up to us to take sides in this competition; we should not be recruiting agents for any profession; our responsibility in recruitment is to make available to our students needed relevant information, and let them make up their own minds.

"It seems to me that these matters have significant implications for curricular developments. How can we achieve breadth, and depth, and retain sufficient flexibility for the needs of individual students? How can we meet the demand for education for many without loss of quality in general, and in particular, without sacrificing the opportunity which our ablest students should have to achieve the excellence of which they are capable?"

Dean Strevey agreed with the points which the preceding speakers had made but invited the attention of the group to several problems. He expressed a firm belief in general education but did not believe that it was necessary to oppose professionalization in itself. A summary of Dean Strevey's observations follows: It is perhaps desirable for us to extend the general requirements for degrees. But to extend these general requirements in place of specialization or of work in depth within a particular subject matter field would be most undesirable. We should require in the first two years of college, work with a great deal of diversity of course-content. The fact that a major field is taken by an undergraduate student seems to mean to some people that we are engaged in professionalization. But surely we cannot argue against this.

In addition to the development of honors programs in colleges there are also honors programs being developed in high schools. The use of the advanced placement tests has helped us considerably in the acceleration of able students. The result of this is that students come to us with enthusiasm and want to take work in their own field of interest and want to take this work early. They want to do this work in depth; otherwise college work seems too much like what they had before in high school. What we want is to assure that a student's program of training from high school through college and into graduate work or professional work provides the proper combination of work and provides adequate continuity of work at the appropriate level of specialization.

Part of the loss of medical applicants which has already been referred to is a result of the applicant's being forced to face a long term of preparation without any opportunity for earning an income. If we compare the opportunities for support during medical training with the nature of support while a person works for a degree in the science areas, there is certainly a great difference. We need to tackle this problem before we ask whether professional work in and of itself is becoming unattractive.

What we have wanted to develop are educated scientists and educated physicians and educated engineers, but we must face a variety of new problems. We must face an explosion of knowledge which makes it impossible for a person to know all there is to know in a field. We must face the accreditation requirements which represent a certain number of constraints on what we may do. We must face state requirements as, for example, in licensing, and we must make sure that the student obtains the necessary prerequisites for his graduate work.

One need not be concerned with the nature of curricular patterns that might be compared or contrasted with regard to these problems. What we must do is to concern ourselves with the quality of instruction. Even highly specialized courses which many might object to by title can nonetheless have great general education values. An institution must make its own decisions in terms of its own purposes and values. The private schools must carry their own share of this responsibility and must make decisions in terms of their general purposes.

In the discussion that followed the observations of the chairman and panelists, the speakers and others present called attention to the fact that medical schools do not have the scholarships and fellowships that the sciences have and that medicine is also today losing a considerable amount of the glamour it has held in the past. For one thing it has had a bad press, partly as a result of the stance it has taken with regard to socialized medicine.

It was pointed out that it is impossible to sort out courses that provide breadth and courses that provide depth. These labels do not fit very often. What is important is the student. It is that which excites a student that we ought to pay attention to. Perhaps it is who is teaching the course rather than what degree of specialization the course has.

Discussion came back quickly to the medical school problem which had been raised in the preceding papers. What is it that medical schools demand? What is it they want of students? Dean Cadbury responded that the *best* schools are able to require that the student have both a general and a specialized background, that the next-level schools are forced to choose between the broadly educated person and the person with the excellent science background. But in no instances are students rejected from medical schools because they do not have a science major. In other words, there are non-science majors who get admitted to medical schools regularly, and this includes both men and women.

The point was made that accreditation agencies are tying our hands even though they talk as we do about the merits of general education. Dean Strevey responded that the history of the way in which teachers are trained is encouraging since we can now see efforts to increase the number of content courses in the preparation of high school teachers. What we must argue for is quality and we should not worry that what we are doing might be described as working for specialization. We have some of these troubles much of the time because the colleges within a university do not work together enough. When they do work together, the solutions in terms of the appropriate balance between the various types of courses are frequently the very solutions that we would all agree here are most desirable.

Similar questions were raised with regard to the degree of specialization in many journalism schools and again the points need to be made that accreditation procedures properly employed frequently give support to an institution and that most of the accrediting agencies are working toward the same objectives we are at the present time.

A general discussion followed which included complaints about the degree to which the undergraduate program seems to aim toward serving a very small group of students who are going into professional or graduate programs and that these undergraduate programs ought to be of the same general education variety as for

all students. The general agreement was that all students and particularly the pre-professional students should find in their undergraduate program a lift and a challenge, that we should provide a greater degree of flexibility for the superior student and also a greater degree of flexibility for the average student, that it may be desirable under certain circumstances to provide a somewhat different program for a select group of students but that we surely need to provide an equal amount of opportunity for students at the next lower level. Surely we will not lack for variety in such programs—but we should have common goals which apply to all kinds of students. And we must hope and expect that the American public will be willing to pay for all of these educational programs.

GROUP III

The Liberal Arts College and the Graduate School

Chairman: DEAN WILLIAM PEERY
Tulane University

Panelists: DEAN CHARLES E. SHEEDY, C.S.C.
University of Notre Dame
DEAN RICHARD L. BARBER
University of Louisville

Recorder: DEAN DEWEY B. STUIT
State University of Iowa

Dean Peery in his opening remarks described the present position of the graduate dean in the typical university organization and referred to some of the inevitable problems of coordination which must be considered by the graduate dean and the college deans, particularly the liberal arts dean. He expressed the hope that the members of the group would define the discussion topic broadly and in particular that consideration be given not only to what is taught in courses in which the undergraduate and graduate colleges have a joint interest, but how it is taught. Specifically, he suggested that the group devote attention to the following questions:

1. What do we do on the undergraduate level primarily because of our obligations to the graduate school?
2. Should we offer advanced courses which enroll largely graduate students and only a few undergraduates?
3. Are promotions in rank determined primarily by the faculty member's performance at the graduate level?
4. What are the effects of the faculty's interest in research on quality of undergraduate teaching?
5. How well satisfied are liberal arts colleges with the "products" of our graduate schools?

The chairman then introduced the first of the panelists, the Reverend Charles E. Sheedy, Dean, Liberal Arts, University of Notre Dame, who spoke as follows:

"Reading Bernard Berelson's book, *Graduate Education in the United States,* was helpful preparation for these remarks, but at the same time a some-

what rueful experience. I saw all of my own brilliant and original ideas clearly noted down and dispassionately criticized, and I found that every complaint, every criticism, every suggestion for sweeping reform has been repeated annually since 1876, the year that is associated in this country with the beginnings of graduate work. The formulations of 1900 and 1910 are not much different—though often better expressed—than those of 1960. But the general effect of Berelson's book is not depressing. On the contrary, the graduate school in the United States in less than one hundred years has made an unbelievable achievement. Singling out only one aspect out of many possible, the graduate school has continuously done the job of supplying college teachers—a job that in turn the colleges themselves have failed to do for the high schools. The graduate schools have given the quality to our colleges, and our critical appraisals move out from an attitude of respect and esteem. In that attitude, we continue our study of the relationships between the college and the graduate school. Out of a large range, I have selected four points for comment. I am writing in the context of a college and graduate school incorporated in one university.

"Professors and associate professors of the graduate faculty should be permitted to teach freshmen and sophomores, if these professors like to do this, and if they can do it well. Sometimes a department will restrict the range of a professor's influence on the campus by confining his teaching to graduate seminars, dissertation direction, and maybe one course for upper-division departmental majors. Thus a great teacher might reach in an academic year a number of students that seems absurdly small. A change of practice in this respect would of course provide a great lift for the freshmen and sophomores. Also it would bring new enjoyment to the professor who likes to do it. And the department would ultimately profit, in majors and graduate students, from putting its best foot forward in the courses of the freshman and sophomore year.

"The same thing applies to visiting professors, from other universities and from other countries. Let them teach lower-division students if they want to and are able. This will be good for the students, and may also enable more of the home faculty to teach graduate students, which is something they all want to do.

"Graduate students should teach undergraduates. I would not see this merely as our acceptance of a necessary situation, but as a genuine part of graduate training. But the graduate student should be supervised, should not be given the free hand of an independent teacher. Very often arrangements for supervision are made, but are not carried out, either because the people are too busy or because they are not really interested. I would see this supervision as a very responsible assignment to a faculty member, with allowance of time to fulfill it. Supervision should be a continuing task organized so as to make sense without destroying freedom or initiative. The faculty-supervisor needs authority, supported by the department head, to carry out his procedures. A minimum test of this supervision is whether the graduate student is actually aware that it is going on. But this is the minimum.

"I do not think graduate assistants should be regarded as mere 'section hands' or persons capable only of mechanics and routine work. If possible, they should get experience in teaching at levels above those of basic or remedial requirements. But on the other hand, colleges which acquire young doctorates for their faculties should not expect the graduate school to have done the whole job of apprentice preparation. The first teaching job is itself a quasi-internship, and colleges should be prepared to train their own young teachers.

"In short, a good supervisory program for teaching assistants will achieve justice in our duty toward undergraduate students, and will add an aspect of learning and experience to the graduate student himself.

"I favor intermingling of undergraduate students and graduate students in graduate classes. But this with the proviso that the arrangement represent a true movement upwards by the qualified undergraduate, not a movement downwards in graduate standards. I do not favor the existence of a number of courses in a no man's land open indiscriminately to undergraduate and graduate students for credit at both levels. A graduate course should be a true graduate course constructed according to our view of what graduate work is. Superior undergraduates are invited, and they should do the work in substance, though the teacher may discriminate between the two groups in his expectancy of the amount and quality of personal work.

"Finally, I was pleased to see in Berelson's book his opinion that the graduate faculty does not want to see heavy specialization in the first-year entering class of graduate students. Some undergraduate departments will push and push for more courses or related courses in the undergraduate major, on the ground that they want their seniors to be prepared for graduate school equally with seniors from other colleges. Berelson's view that not even the graduate faculty wants this is evidence for us to use in resisting this pressure. I believe we should favor the arrangement that Berelson recommends: Liberal undergraduate education, with some rational balance between breadth and concentration. And on the graduate level, specialization pure and simple, with no beclouding of the issue by attempting to work into the graduate school curriculum materials of general background that should have been learned already."

The second panelist introduced was Dean Richard L. Barber, University of Louisville, substituting for Dean Phillip H. Rhinelander of Stanford University.

In his remarks Dean Barber described the three-year master's degree program at Stanford (the topic Dean Rhinelander was scheduled to discuss) and its implications for relationships between graduate and undergraduate education. He went on to stress the following points: first, a joint undergraduate and graduate instructional program requires the appointment of a faculty which can serve this dual purpose; second, undergraduate teaching is frequently improved by the presence on the campus of graduate education; third, graduate work does tend to foster specialization and the teaching of "fragmented" courses; fourth, some general education is probably desirable at all levels; fifth, the quality of undergraduate students is improved when undergraduate and graduate work are taught on the

same campus; sixth, there should be clear statements of policy as to division of funds between graduate and undergraduate instruction.

The discussion period was concerned primarily with the role of the graduate assistant in the teaching of undergraduate students. One specific question raised was: "Assuming money were not a factor, would we use graduate students in the teaching of undergraduate courses?" The consensus seemed to be that in a university system a considerable number of graduate assistants should be employed as part-time teachers. The production of college teachers is an important function of the graduate school. Graduate students who plan to go into college teaching should have some teaching experience as a part of their graduate studies. It was emphasized, however, that the teaching of graduate assistants should be carefully supervised. Classroom visits by supervisors and by fellow teaching assistants as well as ratings by students were suggested as means for providing training in the teaching function. Assuming that the teaching assistants are properly selected and supervised, it was felt that good and sometimes superior teaching is done by assistants. The chief criticism of the present system was felt to be the inadequate supervision of graduate assistants. If this deficiency were corrected, it would seem advisable to continue the main features of the present program of cooperative effort in the instructional programs of undergraduate and graduate colleges.

GROUP IV

Staffing Problems: the education and the re-education of the faculty

Chairman: DEAN ROBERT F. CAMPBELL
Clark University

Panelists: DEAN FRANK C. GUCKER
Indiana University
DEAN PARKER E. LICHTENSTEIN
Denison University

Recorder: DEAN WILLIAM H. MARTIN
Hampton Institute

In presenting a framework within which the group could discuss the assigned topic in its bearing on the central theme, the chairman pointed out that "Exploding Pressures on the Curriculum" may be the result of (1) the exponential increase in knowledge and the consequent growth in specialization; and (2) the rapidity of social and technological change and the consequent cultural revolution. In order to meet these pressures, various curricular changes will be necessary such as (1) relating courses and curricula to the agreed-upon mission of the institution; (2) planning a series of courses with a common theoretical basis; (3) planning science courses for non-scientists, and providing more humanistic and social scientific education for scientists; and (4) developing and offering more interdepartmental courses, and more divisional and inter-divisional programs.

In their prepared statements the panelists addressed themselves to measures involved in overcoming staffing problems which will result from the academic population explosion. While one of the discussants subscribed to the position that the expected crisis in college enrollment and the consequent shortage of teachers in the next decade have been generally overstated, he felt that, in the

light of increased competition from government and industry, the output of Ph.D.'s will be inadequate to meet the staffing needs of colleges and universities in the years ahead. Accordingly, in attempting to overcome the problem, some promising means which may be utilized include (1) better preparation of graduate students for teaching; (2) further training and retraining of faculty; (3) better cooperation among colleges and universities to reduce duplication of small programs; (4) better use of faculty time in instruction; and (5) further experimentation in the use of mechanical aids for certain types of instruction.

At the graduate and undergraduate levels, faculties can contribute by encouraging good students to select college teaching as a career. A number of universities have established programs designed to identify promising undergraduates and to provide them a three-year program commencing in the junior year and extending through the M.A. degree. As there is little indication that graduate schools will increase to any great exent their output of college teachers, master's programs in college teaching should be established in several strong liberal arts colleges.

Recognizing the difficulties inherent in attempting to develop at the college level a program of in-service education, it was pointed out that there is a trend in higher education toward greater freedom for individual faculty members, more liberal sabbatical leave policies, more liberal grant-provisions for special projects of all kinds, higher pay, and lighter teaching loads. Institutional efforts to promote the in-service improvement of faculty members may be supplemented by grants from outside sources, private and governmental. Among these sources are the Danforth Foundation, the Guggenheim Foundation, the Ford Foundation, the Social Science Research Council, the National Science Foundation, and the Atomic Energy Commission. Some of these foundations provide grants to support summer or year-long study in research centers and graduate schools; others support projects in the area of productive scholarship.

Better cooperation among colleges and universities may prove effective as a means of avoiding duplication of effort and thereby may facilitate the more effective use of faculties. Some colleges have inaugurated plans involving the joint use or appointment of faculty members; others have developed policies which permit students to pursue courses at other institutions; while still others have developed relationships involving joint planning of programs.

In making more effective use of faculty-time it was suggested, in addition to the measures already mentioned, that:

1. Experienced professors should not be involved in elementary language drill or routine laboratory instruction that could be handled as well by assistants or less experienced teachers;
2. College professors should be freed, insofar as possible, from routine clerical duties which are altogether too time-consuming and wasteful of the professors' talents;
3. Faculty members should be encouraged to experiment freely with new instructional devices; and
4. Students should be encouraged to assume more responsibility for their educational development through programs of independent study.

The discussion centered around the impact of these pressures, and the neces-

sary curricular reforms, faculty staffing, faculty orientation, and faculty re-education. Thus, consideration was first given to the responsibility which should be assumed by the liberal arts college and the graduate school in recruiting college teachers. Some members of the group took the position that primary responsibility rests with the undergraduate college because students generally have made up their minds upon entering graduate school. It has been reported in scattered studies to the contrary that such decisions are made in graduate school and not in the undergraduate college. Following further discussion, the group agreed that graduate advisers exert a great deal of influence over students and, in a sense, recruitment responsibility should possibly be viewed as a joint undertaking.

Some higher institutions are now offering graduate assistants seminar-type courses with a view to helping them develop good teaching techniques and encouraging them to select college teaching as a career. Inter-class visitation between young instructors and experienced professors was proposed also as a way of aiding inexperienced teachers in getting a good start.

Aside from recruiting good prospects and keeping them, an equally important problem involves changing present faculty members for a new kind of curriculum which must be developed in the years ahead. Specifically, how can we get specialists to teach general education courses? In other words, is it possible for the specialist to accept the challenge of teaching broader courses without abandoning his identity with his field of specialization? Most college teachers are specialists chiefly because the Ph.D. programs presently offered in graduate schools emphasize a high degree of concentration. In view of this state of affairs and the need for college teachers with a broader orientation, it is urgent that agreement be reached on a coherent expression of the kinds of individuals we desire as college teachers.

In considering what role the liberal arts colleges can play in preparing college teachers, it was argued that such institutions are already overburdened with their baccalaureate programs and, furthermore, that employing officers would likely have some reservations about looking to small schools as a source of supply for college teachers. There seemed to be general agreement that liberal arts colleges which are overburdened should not attempt to offer graduate work. In the event that such colleges seek to do so, however, the professors offering work at the graduate level should be given some relief by making graduate assistants available to them. It was pointed out in defense of these colleges that some people would elect to teach in small liberal arts colleges if an opportunity were provided to offer graduate courses.

There was evidence of concern as to how provisions may be made for larger enrollments in the face of the shortage of teachers. It was reported that some institutions are attempting to provide instruction for more students without making faculty additions, as suggested elsewhere, by relieving professors of clerical work, by using various kinds of teaching devices, and by encouraging students to assume more responsibility for their education through programs of independent study.

Further discussion of the re-education of the teacher centered around a current trend to provide leaves other than sabbatical, especially for staff members who wish to do special research. On this point the group was advised that in recent years an undetermined number of institutions have liberalized their policies regarding leaves so as to accommodate faculty members who submit research or

scholarly proposals of high quality although at the time they may not be eligible for a sabbatical leave.

Finally, the group discussed ways of introducing more non-Western material into the college curriculum. It was suggested that, as a first step in this direction, informal faculty study groups might be organized with representatives of several scholarly disciplines. Further, it was pointed out that study opportunities are now available at certain colleges and universities in which institutes, devoted to the study of different cultures, are being conducted. Also, attention was called to the fact that foundation grants are being made available, such as the one provided at a well-known liberal arts college, to enable the faculty to study non-Western cultures.

MINUTES OF THE BUSINESS MEETING

The meeting was called to order by Vice-Chairman W. E. O'Donnell, who presided in the absence of Dean Nancy Lewis. The report of the Treasurer was presented and accepted, and the Secretary was instructed to cast a unanimous ballot for the entire group. The report of the Nominating Committee was presented by Dean Martin M. White. The Vice-Chairman's suggestion that the Association send greetings to Dean Nancy Lewis and express its thanks to officers, members of the Executive Committee, and especially to Deans Watts and Perdue for their roles in preparing for the Seventeenth Annual Meeting was formally adopted. Dean Victor A. Rapport presented the question of *ACAD* representation at meetings concerning pre-professional education. The discussion which followed resulted in the adoption of a motion that the matter be referred to the Chairman with power to act. It was announced that the next meeting would be on January 9, 1962 at the Sheraton Hotel in Cleveland, Ohio.

January 9, 1961

REPORT ON THE COMMITTEE ON NOMINATIONS

For Chairman.....THE REV. W. E. O'DONNELL
College of St. Thomas

For Vice-Chairman.....DEAN W. E. CADBURY
Haverford College

For the Executive Committee, term to expire

1965—DEAN FRANK T. GUCKER, Indiana University
DEAN WALTER H. DELAPLANE, S.M.U.

1962—DEAN PHILIP H. RHINELANDER, Stanford

Respectfully submitted,

DEAN BRAILSFORD R. BRAZEAL
Morehouse College

DEAN RICHARD C. GILMAN
Carleton College

DEAN ELLEN HUCKABEE
Duke University

DEAN J. BOYER JARVIS
University of Utah

DEAN EDWIN D. SMITH
Syracuse University

DEAN MARTIN M. WHITE, *Chairman*
University of Kentucky

January 9, 1961

AMERICAN CONFERENCE OF ACADEMIC DEANS

TREASURER'S REPORT—January 1 - February 18, 1960

WILLIAM E. CADBURY, JR., *Treasurer*

BALANCE ON HAND, JANUARY 1, 1960		
RECEIPTS (January 1 - February 18, 1960)		$1,447.26
Before Boston Conference, 38 dues at $3.00	$ 114.00	
At Conference, 171 dues at $3.00	513.00	
Since Conference, 6 dues at $3.00	18.00	
Tickets for 216 lunches at $4.00	864.00	
Cash, Executive Committee	10.37	1,519.37
TOTAL RECEIPTS		$2,966.63
DISBURSEMENTS		
Cash, for lunches, Boston, Mass.	$ 915.60	
Cash, for dinner	90.35	
Check No. 35, to Arthur Bestor, for travel	147.51	
Check No. 36, to Francis S. Chase, for travel	151.88	
TOTAL DISBURSEMENTS		$1,305.34
BALANCE ON HAND, FEBRUARY 18, 1960		$1,661.29

TREASURER'S REPORT—February 18, 1960 - December 31, 1960

MERRILL R. PATTERSON, *Treasurer*

BALANCE ON HAND, FEBRUARY 18, 1960		$1,661.29
RECEIPTS (February 18, 1960 - December 31, 1960)		
233 dues in advance for 1961 at $3.00	$ 699.00	699.00
TOTAL RECEIPTS		$2,360.29
DISBURSEMENTS		
Hotel Statler (Boston)—Prof. Bestor	$ 23.68	
Howard G. Hoffman (Proceedings)	779.00	
Frank M. Snowden, Jr. (Mailing Proceedings)	36.00	
Brown University (for Nancy Lewis, Mailings ACAD)	45.45	
Batt, Bates & Co. (addressograph plates, etc.)	25.19	
Batt, Bates & Co. (duplicating & mailing)	74.21	
TOTAL DISBURSEMENTS		$ 983.53
BALANCE ON HAND, JANUARY 1, 1961		$1,376.76

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Albright College, Reading, Penna.....Mahlon H. Hellerich
Alfred University, Alfred, New York.....J. W. Gustad
Allegheny College, Meadville, Penna.....Julian L. Ross
Alma College, Alma, Michigan.....William B. Boyd
Anderson College, Anderson, Indiana.....Robert A. Nicholson
Aquinas College, Grand Rapids, Michigan.....Sister M. Mildred
Arkansas College, Batesville, Ark.....Roland Dickison
Ashland College, Ashland, Ohio.....L. E. Lindower
Atlantic Union College, South Lancaster, Mass.....R. E. Cleveland
Augsburg College, Minneapolis, Minn.....Martin Quanbeck
Austin College, Sherman, Texas.....Leo L. Nussbaum

Barat College of the Sacred Heart, Lake Forest, Ill.....Mother Traynor
Benedict College, Columbia, South Carolina.....T. J. Hanberry
Bethany College, Bethany, West Virginia.....B. R. Weimer
Bethel College and Seminary, Baptist General Conference of America, St. Paul, Minn.
Bowling Green State University, Bowling Green, Ohio.....K. H. McFall
Brooklyn College, Brooklyn, New York.....Library
Brown University, Pembroke College, Providence, R. I.....Nancy D. Lewis

California, University of, Berkeley, California.....General Library
Chicago, University of, Chicago, Illinois.....Library
Citadel, The, Charleston, South Carolina.....R. M. Byrd
Columbia, University of, Teachers College Library, New York City
Converse College, Spartanburg, S. C.....Wilson C. Snipes
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Doane College, Crete, Nebraska.....D. E. Williams
Dunbarton College, Washington, D. C.....Sister M. Madonna

Earlham College, Richmond, Indiana
Eastern Baptist College, St. Davids, Penna.....G. S. Claghorn
Eastern New Mexico University, Portales, N. M.....Gail Shannon
Findlay College, Findlay, Ohio.....H. O. Now
Florida Agricultural & Mechanical University, Tallahassee, Fla.....C. E. Walker
Florida Christian College, Tampa, Florida.....Clinton D. Hamilton
Ford Foundation, New York City.....Elizabeth Paschal
Franklin College, Franklin, Indiana.....R. G. Brooks
Franklin and Marshall College, Lancaster, Penna.....T. M. Darlington
Furman University, Greenville, S. C.....A. E. Tibbs

Geneva College, Beaver Falls, Penna.....John S. McIsaac
Georgia, University of, Athens, Georgia.....John O. Eidson

Harding College, Searcy, Arkansas.....L. C. Sears
Hawaii University, Honolulu, Hawaii.....Allan F. Saunders
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Institute for American Universities, Aix-en-Provence, France.....Herbert Maza

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Lehigh University, Bethlehem, Penna.....Glenn J. Christensen
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Milton College, Milton, Wisconsin.....L. M. Van Horn
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Nazareth College of Rochester, Rochester, N. Y.....Sister Saint Catherine
Nebraska Wesleyan University, Lincoln, Nebraska.....Sam Dahl
New England Board of Higher Education, Winchester, Mass.....Robert H. Kroepsch
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West Virginia Wesleyan College, Buckhannon, W. Va.....Orlo Strunk, Jr.

Yeshiva University, New York City.....Isaac Bacon
Young Harris College, Young Harris, Georgia.....Ray Farley

REGISTRATION — JANUARY, 1961
AMERICAN CONFERENCE OF ACADEMIC DEANS

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